



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

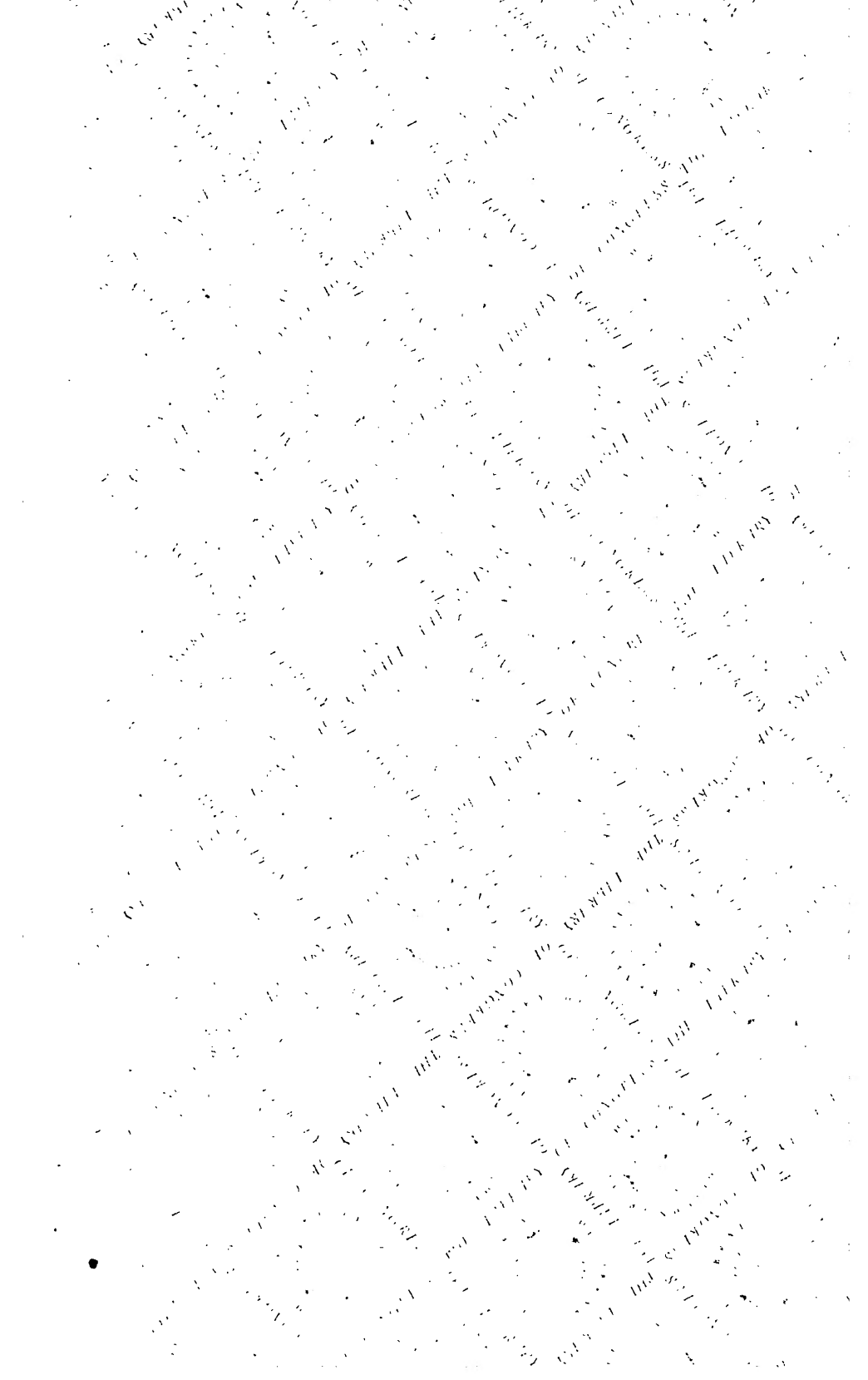
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

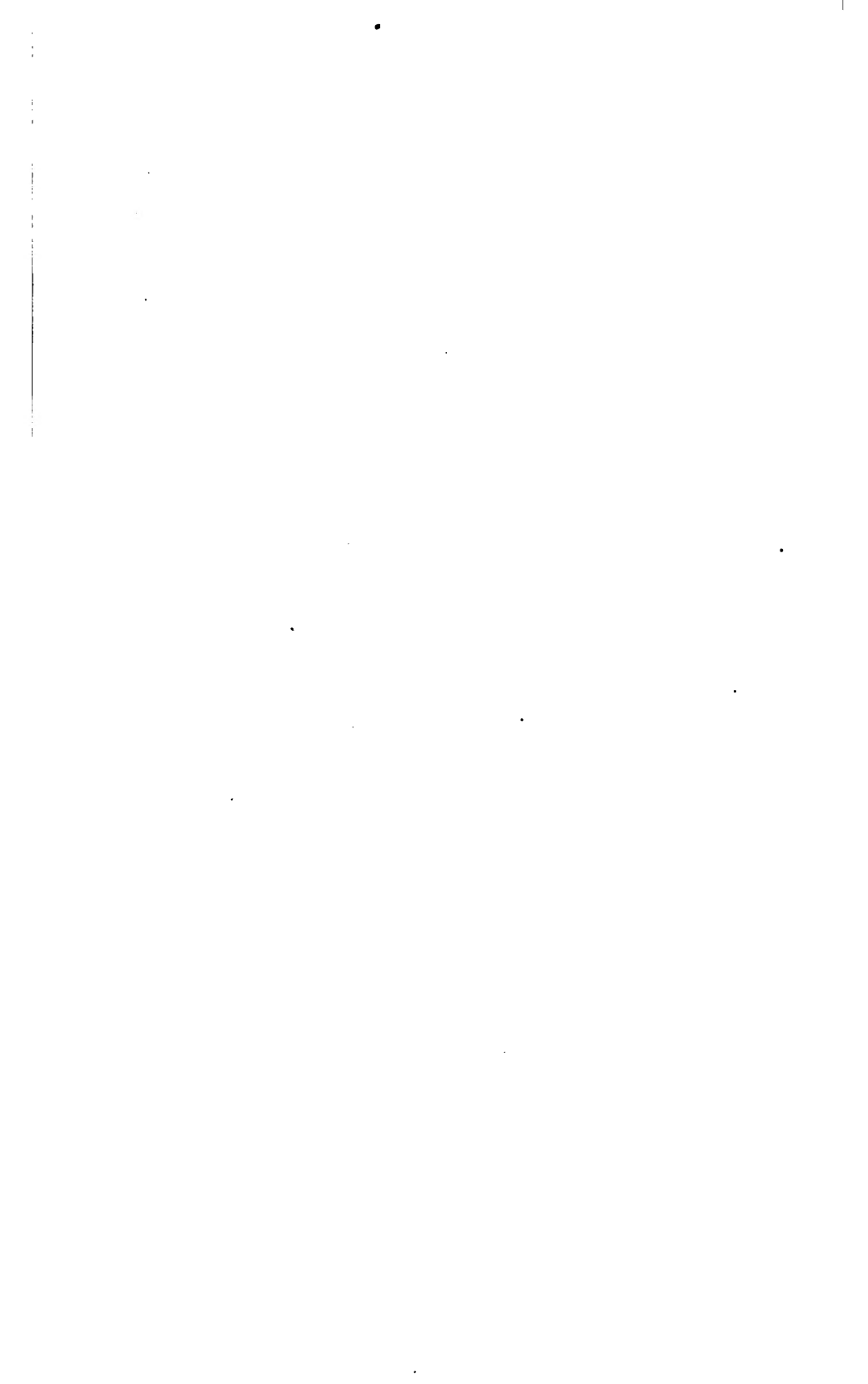
We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>





HEARINGS

CONCERNING

ESTIMATES FOR CONSTRUCTION OF THE ISTHMIAN CANAL

FOR THE FISCAL YEAR
1909

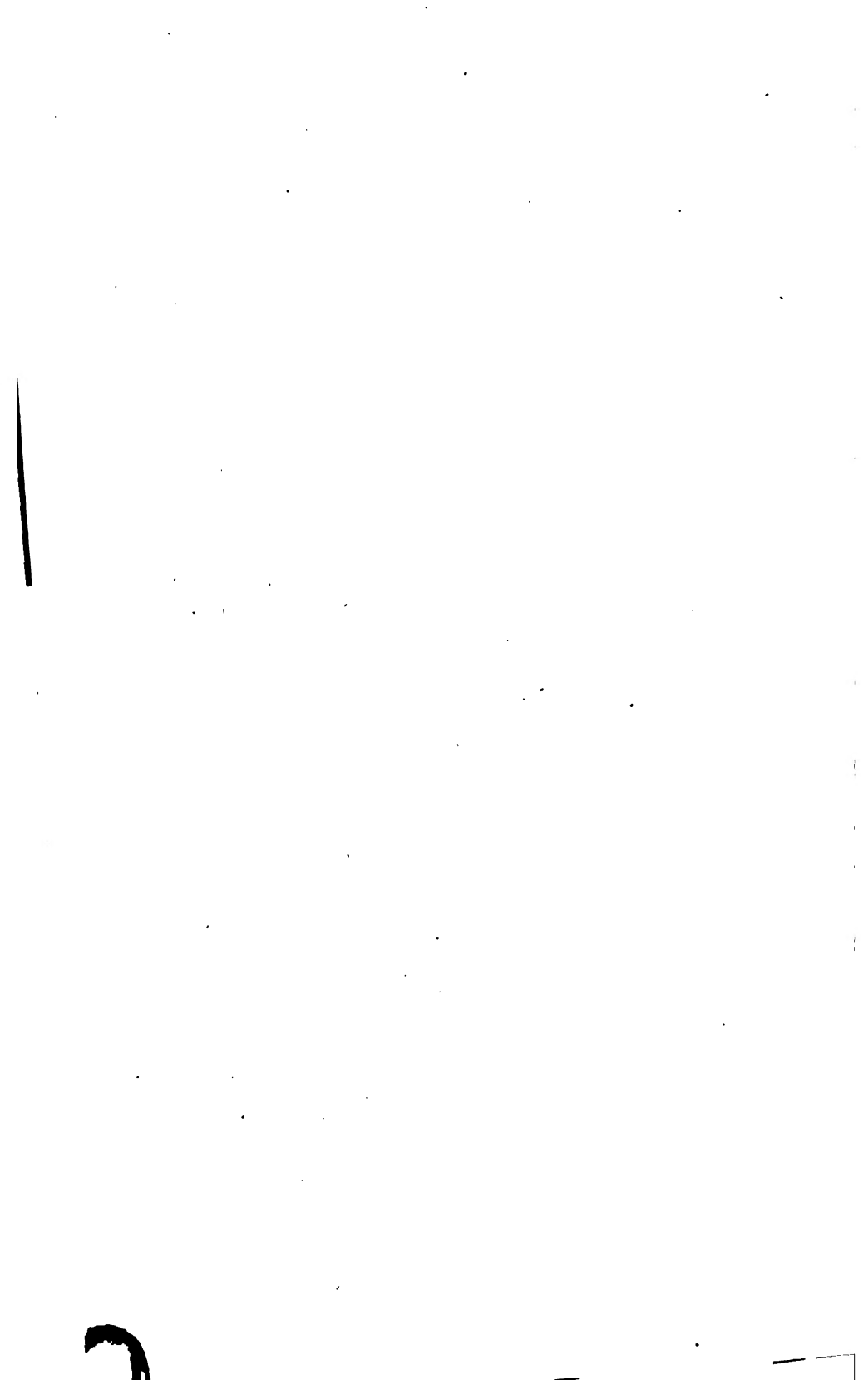
Conducted by

MESSE^S. JAMES A. TAWNEY, WASHINGTON GARDNER, FREDERICK H. GIL-
LETT, JOSEPH V. GRAFF, ABRAHAM L. BRICK, J. WARREN KEIFER, MAR-
TIN B. MADDEN, GEORGE W. TAYLOR, AND ALBERT S. BURLESON, MEMBERS
OF THE COMMITTEE ON APPROPRIATIONS, AND MR. JAMES R. MANN, MEMBER OF
THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE, FIFTY-NINTH CONGRESS,
AND REPRESENTATIVES-ELECT TO THE SIXTIETH CONGRESS

WASHINGTON
GOVERNMENT PRINTING OFFICE

1908

55157



2

Colonel GOETHALS. Seven, all told, including myself.

The CHAIRMAN. Do they all reside here on the Zone?

Colonel GOETHALS. They all reside on the Zone.

The CHAIRMAN. Will you, for the purpose of the record, give the names of the Commission?

Colonel GOETHALS. Myself, Maj. D. D. Gaillard, Maj. W. L. Sibert, Mr. H. H. Rousseau, Col. W. C. Gorgas, Mr. Jo S. C. Blackburn, Mr. Jackson Smith, and Mr. J. B. Bishop, secretary.

The CHAIRMAN. Will you also state the compensation that is now allowed to each of the Commissioners?

Colonel GOETHALS. To the Chairman, \$15,000, including Army pay; \$14,000, including Army or Navy pay, to each of the four other Commissioners selected from the military and naval services; \$14,000 for each of the two civilians; \$10,000 to the Secretary.

The CHAIRMAN. I think you omitted to mention the compensation to Governor Blackburn.

Colonel GOETHALS. No. I was going to say that in addition to the pay they were each allowed a furnished house on the Isthmus.

The CHAIRMAN. Did you mention Governor Blackburn's compensation?

Colonel GOETHALS. Fourteen thousand dollars for the civilian members. Each Commissioner has the use of a carriage and coachman. They have also free transportation over the railroad. Travel expenses are allowed when ordered away from the Isthmus on duty, but no allowance for travel or additional expenses on the Isthmus. The houses are furnished with fuel and electric lights.

The CHAIRMAN. And water?

Colonel GOETHALS. Yes; and water.

The CHAIRMAN. Now, Colonel, before taking up the estimates in detail, I think it would be profitable to the committee to know whether or not, since you have taken charge, there has been any change or modification in the plan for the canal as originally contemplated.

Colonel GOETHALS. Except so far as the details of construction are concerned, there has been no change in the plan.

The CHAIRMAN. There has been no change in the general plan?

Colonel GOETHALS. No change in the general plan or project proposed by the minority of the Consulting Board and the one adopted by Congress.

The CHAIRMAN. Will you say how the work is divided and is now being carried on?

ORGANIZATION AND DIVISION OF THE WORK FOR THE CONSTRUCTION OF THE CANAL.

Colonel GOETHALS. Starting at the Atlantic Coast, we have the Colon Dredging Division, which includes all the dredging and excavations between the deep water in the Caribbean to the Gatun locks.

The CHAIRMAN. A distance of how much?

Colonel GOETHALS. About seven miles. The distance is there on the chart [indicating]. That division at present has charge also of the Gatun dam, because the excavated materials will be used to some extent in the construction of the Gatun dam. Then the Gatun Lock Division, charged with the construction of the locks at Gatun and the operation of the Porto Bello quarries, about 18 miles from Colon;

then the Chagres River Division, which extends from deep water in Gatun Lake to the Chagres River near Bas Obispo.

The CHAIRMAN. That means from the Gatun dam to Bas Obispo?

Colonel GOETHALS. Yes, to Bas Obispo; then the Culebra Division, extending from Bas Obispo to Pedro Miguel locks; the La Boca Division, including the La Boca locks, and which will include also the Pedro Miguel locks; and the La Boca Dredging Division, including the dams and the dredging on the Pacific side. The Pedro Miguel locks are being excavated as a part of the Culebra Division at present, until they get the grade provided for the Culebra Division, +40, when it will be turned over to the Lock Division, which will continue the excavation for the lock site.

The CHAIRMAN. Who are now in charge of the respective divisions—in immediate charge, I mean, under you?

Colonel GOETHALS. Immediately under me, the locks and dams are under Major Sibert; the excavations under Major Gaillard; the machine shops, the building construction, and the municipal engineering work under Mr. Rousseau. That is as far as the Department of Construction and Engineering is concerned.

The CHAIRMAN. Will you explain, Colonel, what is included in the Municipal Engineering Department?

Colonel GOETHALS. Water works along the line, sewer system, electric lighting, and roads and trails.

The CHAIRMAN. You do not include in that the municipal engineering in Colon and Panama?

Colonel GOETHALS. I do. That is under the same department.

GATUN DAM.

The CHAIRMAN. Speaking of the Gatun dam, have you, since taking charge of the work, conducted any investigations of your own for the purpose of satisfying yourself as to the sufficiency of the foundations, which have been questioned, upon which the dam is to rest?

Colonel GOETHALS. None, except in the vicinity of the Chagres River, where excavation has been conducted, and which discloses the fact that we have got a good foundation of sand and gravel under the silt that has been removed. For the rest of the dam, there has never been any doubt in my mind as to the suitability and stability of the foundation. So far as the locks are concerned, we have conducted an independent system of borings by washings and diamond drills, securing drive samples and cores, so as to determine the character of the rock, not alone to the depth of the bottom of the lock walls but 25 feet below the level on which the lock walls are to rest. That we did for the purpose of ascertaining whether any change in the formation existed below the level of the lock walls, as our experience in the Cut shows that the geological formation is constantly changing. The 25-foot depth was taken, because with that depth of rock there is, in our opinion, absolutely no question as to the stability of the structures that will be placed upon them.

The CHAIRMAN. Now, for the purpose of the record, Colonel, will you state how you propose to construct this dam? Give a description of the materials and dimensions of the dam when completed.

Mr. TAYLOR. One question, Mr. Chairman, before you get to that. Did you find, Colonel, any evidences whatever of quicksand?

Colonel GOETHALS. None at all.

Mr. TAYLOR. Or any breaks or fissures in that last formation, 25 feet lower than you had gone before?

Colonel GOETHALS. We found hard, argillaceous sandstone, and then a layer of the softer sandstone, and then another layer of hard stone. We have gone right through and we get a good foundation, but no quicksand have we found in any part of the construction, from one end of the Canal to the other. The details of the dam have not yet been definitely decided on, but the general principles to be followed have been. The width of the dam will be practically that recommended by the Consulting Board.

The CHAIRMAN. What is that width?

Colonel GOETHALS. Practically a half mile at the bottom and about 80 feet wide at the top, and the general reference of the dam will be the same—135, or 50 feet above the water level in the lake.

Mr. KEIFER. You are speaking of the dam itself?

Colonel GOETHALS. The whole dam. We have concluded to weight the toes of the dam by constructing a rock pile, using the rock excavated from Bas Obispo up to a reference 30, with a minimum width of 50 feet.

The CHAIRMAN. Members of Congress are perhaps not as familiar with these engineering terms as you are. You say a reference of 30 feet. That is above the sea level?

Colonel GOETHALS. Yes; mean tide. That rock pile will be 50 feet wide as a minimum. From the toe thus constructed the slope of the dam on the water side is to be 1 on 5 to reference 105, or 20 feet above the level of the water surface of the lake. Above this reference of 105 the slope will be 1 on 3, a width on top of 80 feet, and slopes down on the outside to the top of another rock pile at the foot of the dam. These slopes are 1 on 3 from the top to reference 85, and below this 1 on 25. We have also decided to put in a core composed of impermeable material. The width or thickness of the core will depend upon the amount of suitable material that we can find in the vicinity of the dam. We propose to make it as wide as possible, and after that core is constructed, or during its construction, the rest of the dam will be completed by hydraulic fill in the manner recommended by the Board of Consulting Engineers.

The CHAIRMAN. The length of the dam when completed will be about a mile and a half?

Colonel GOETHALS. I believe that is the figure.

The CHAIRMAN. Including the toes of the dam and this rock pile that you speak of, what will be the width there?

Colonel GOETHALS. The width is practically the same as that recommended by the Consulting Board, or a half mile, including this rock. At certain portions of the dam it will be wider, because of the track arrangements to get that rock in.

The CHAIRMAN. What provision will there be for taking care of the flood waters of the Chagres River, and the accumulations under normal conditions?

Colonel GOETHALS. Arrangements are being made now for a spillway, which will subsequently be constructed of masonry through the dam and a part of it. The top of this part of the structure is at reference 110, and the crest of the spillway over which the water flows is at reference 69. This spillway consists of a series of sluiceways or openings closed by stony gates for controlling the flood waters. It

is as recommended by the Consulting Board. We make no change in that. There has been discussion and some advocacy of moving the spillway from the dam and building it up the Trinidad River, but we have not considered that very favorably, for it is too far away and we think it should be where it can be carefully guarded.

The CHAIRMAN. Are you at all familiar with the Wachusett dam?

Colonel GOETHALS. I have read of it. I know the method of construction and I have read of the slip that has occurred in a part of the embankment.

The CHAIRMAN. That is an earth dam, too?

Colonel GOETHALS. Yes, that is an earth dam, too. I should add that in the construction of the dam we propose to use, in addition to that core, sheet piling where the dam crosses the streams. That is to insure additional protection against filtration—one of the objections raised to the dam as originally proposed.

The CHAIRMAN. To what depth will you sink the sheet piling?

Colonel GOETHALS. About 50 to 75 feet. That will be lapped.

Mr. MADDEN. You will put in the Wakefield sheet?

Colonel GOETHALS. Yes; on that same principle, lapping the joints.

The CHAIRMAN. With the rock toes to this dam that you propose to construct, you think those would insure against such an accident as occurred to the Wachusett dam?

Colonel GOETHALS. Yes; not only due to that, but also due to the gentler slope that is provided.

The CHAIRMAN. What is the slope of the Wachusett dam?

Colonel GOETHALS. One on three.

The CHAIRMAN. And the slope of this dam would be 1 on 5?

Colonel GOETHALS. Yes.

Mr. BURLESON. That is no departure from the minority of the Consulting Board, is it?

Colonel GOETHALS. We have changed from 1 on 3 to 1 on 5.

CHAGRES DIVISION.

The CHAIRMAN. From the dam to Bas Obispo there would practically be no work required?

Colonel GOETHALS. Oh, yes; in the Chagres Division a considerable amount of excavation will be required between the deep water of the lake, and the lines are marked on that map [indicating map]. I will give you the approximate distances. One mile south of Bohio, from there to Bas Obispo, about 13 miles of length of canal would have to be excavated to the required depth.

The CHAIRMAN. Then the water accumulated in the dam will not afford a sufficient depth from Bohio to Bas Obispo without excavation?

Colonel GOETHALS. A mile south of Bohio, you see, there are projections above the bottom grade that have to come out in that section. Here [indicating] is Bas Obispo and here is Bohio, and the first part requiring excavation is there [indicating].

The CHAIRMAN. Is there any considerable amount of excavation in that distance that you have just mentioned?

Colonel GOETHALS. The difficulty with that section is the interference that is liable to occur by floods of the Chagres. The line of the canal crosses the Chagres 23 times in that division and the floods in

the Chagres are liable to overflow the sections on which work is being prosecuted.

Mr. MADDEN. This excavation of which you speak between Bohio and Bas Obispo, Colonel, is largely the removal of hills that are in the way of the channel, are they not?

Colonel GOETHALS. Yes, and low ground. In one section the natural surface is only about two feet above grade, but it will have to come off in order to secure proper depth. I can give you all the figures before you leave.

Following are the figures referred to:

ISTHMIAN CANAL COMMISSION.

Estimate of excavation to be accomplished in the Chagres Division.

	Dry excavation.	Wet excavation.	Total excavation.
	Cubic yards.	Cubic yards.	Cubic yards.
Total estimate.....	8,000,000	5,000,000	13,000,000
Excavated up to Oct. 31, 1907.....	52,273	.....	52,273
Remaining to be excavated on Oct. 31, 1907.....	7,947,727	5,000,000	12,947,727

CULEBRA, CANAL ZONE, November 14, 1907.

GEO. W. GOETHALS,
Chairman and Chief Engineer.

The CHAIRMAN. At the breast of the dam the water in the lake will be 85 feet in depth, as I understand?

Colonel GOETHALS. Yes; and in some parts of that lake it is very much deeper.

The CHAIRMAN. I mean the breast of the dam. It is intended that the depth of water shall be 85 feet?

Colonel GOETHALS. Yes, sir; in some places.

The CHAIRMAN. And have you made surveys for the purpose of ascertaining the area of the water?

Colonel GOETHALS. Yes. They were completed this Summer, and the area of the lake is determined to be 164.23 square miles. That would be the area of the lake at the normal stage of water.

Mr. KEIFER. You said that the depth of water in the lake for the purpose of a channel would be 85 feet. But will it not be greater than that in consequence of a desire to keep a reserve of water in there?

Colonel GOETHALS. I do not want that depth to be put down as the depth in the lake, because it varies. In some cases it is over 100 feet, and in some parts the bottom is at reference 40.

Mr. KEIFER. But in the channel?

Colonel GOETHALS. In the channel we are going to have a depth of 45 feet when the water in the lake is at reference 85.

Major D. D. GAILLARD. The total amount to be removed from the Chagres Division is 13,000,000 cubic yards, of which 5,000,000 is rock and the rest soft material.

Colonel GOETHALS. The rock is to be removed by steam shovels and the rest by dredging.

Mr. KEIFER. You speak of a reference of 40 feet. I understand that the depth everywhere must be at least 45.

Colonel GOETHALS. Yes, 45 feet; but we are referring to the bottom of the Canal being at reference 40, or 40 feet above the mean tide—the top of the water surface is at reference 85, so that the depth is 45 feet.

Mr. KEIFER. The top of the water of the lake will be at least 85 feet above the mean sea level?

Colonel GOETHALS. That is right. At the low stages of the Chagres River during the dry season it may be drawn as low as 82.

Mr. KEIFER. I started to find out whether you did not intend to have more than 85 feet above sea level.

Colonel GOETHALS. During the flood stages we go up to 86 or over, but the top of the locks are at reference 90, and the stages are regulated by the sluice gates in the dam; but what we figure on is a pool level of 85. The Consulting Board considered the lake as fluctuating between 86 and 82 in determining the capacity of the Canal.

Mr. KEIFER. You want a reserve of 5 feet for the dry season?

Colonel GOETHALS. Yes; the Consulting Board made an allowance of 4 feet for reserve.

Mr. KEIFER. The sluice gates are below the top of the spillway?

Colonel GOETHALS. Yes; they are controlled by stony gates.

Mr. KEIFER. They must be like the gates in the dams of the Nile.

Colonel GOETHALS. Very much after those on the Chicago Drainage Canal.

Mr. KEIFER. I understand that, but I thought the committee did not understand that there would be any surplus of water.

The CHAIRMAN. How long do you estimate it will require to fill the lake so that it will be available for navigation?

Colonel GOETHALS. We have made no estimates, because it is our intention to fill the lake as we proceed for construction purposes, and we expect that when the Canal is completed the lake will be filled.

The CHAIRMAN. That is your expectation?

Colonel GOETHALS. Yes. We will have to have the water in order to get the dredges to work the portion of the Canal between Bas Obispo and Bohio. That is to be removed by dredging.

The CHAIRMAN. Are you utilizing any of the work done by the French company between Colon and Gatun in the construction of the dam at Gatun?

Colonel GOETHALS. We are using that for transporting material to Gatun from Colon.

The CHAIRMAN. That is the sea-level canal?

Colonel GOETHALS. Yes, the sea-level canal constructed by the French.

The CHAIRMAN. Will our Canal follow the lines constructed by the French?

Colonel GOETHALS. Our line goes west of that.

CULEBRA DIVISION.

The CHAIRMAN. The line from Bas Obispo through to Pedro Miguel is the next section?

Colonel GOETHALS. That is the Culebra Division.

The CHAIRMAN. What is the distance?

Colonel GOETHALS. Nine and one-half miles.

The CHAIRMAN. That is all excavation?

Colonel GOETHALS. That is all excavation by steam shovels.

The CHAIRMAN. What is the character of the materials?

Colonel GOETHALS. Rock of various kinds and some earth, the bulk of it being rock.

The CHAIRMAN. And when completed the bottom will be 40 feet above sea level?

Colonel GOETHALS. Yes; reference 40.

The CHAIRMAN. And the width at the bottom and the width at the water line will be what?

Colonel GOETHALS. I will give you all these widths while I am before this map [indicating]. It is approximately $3\frac{1}{2}$ miles between San Pablo and Juan Grande; the width is 800 feet.

Mr. KEIFER. Bottom or top?

Colonel GOETHALS. That is the bottom for that section. Between Juan Grande and Gamboa, or rather I should say between Juan Grande and Bas Obispo, a distance of $3\frac{1}{2}$ miles, at the bottom it is 500 feet. From Bas Obispo to Las Cascadas the width is 300 feet, practically top and bottom, a distance of 2 miles. Between Las Cascadas and Culebra, a distance of $4\frac{1}{2}$ miles, the width, top and bottom, will be practically 200 feet. It is through rock, and the side slope is 6 on 1.

The CHAIRMAN. Top and bottom?

Colonel GOETHALS. Yes; and between Culebra and Pedro Miguel, a distance of 2 miles, it is 300 feet at the bottom. The top is side slope on earth.

The CHAIRMAN. You have given the width and depth of the canal—the excavation. Now, Colonel, will you give us the dimensions of the locks?

LOCKS.

Colonel GOETHALS. The locks all along the line are the same, 1,000 feet in the clear and 100 feet wide, 40 feet on the miter sill. The miter sill is the projection from the bottom against which the lock gates rest at the bottom.

Mr. BRICK. What does 1,000 feet in the clear represent?

Colonel GOETHALS. It gives you a waterway which will take care of a body 1,000 feet long and 100 feet wide.

The CHAIRMAN. In the operation of a lock, Colonel, how much space between the sides of the lock and the vessel is necessary in order to have the vessel pass through safely, both to the locks and to the vessel?

Colonel GOETHALS. The less the better. There is less motion and less danger to the vessel and to the lock.

The CHAIRMAN. So that the largest vessel that we have now in the Navy, or which we have authorized, would have clear on each side $7\frac{1}{2}$ feet.

Colonel GOETHALS. Yes, sir; such as the *Delaware* type. That is, I believe, the latest type.

The CHAIRMAN. There would be $7\frac{1}{2}$ feet clear, so that even with a 100-foot lock you could take through a vessel 95 feet in width.

Mr. KEIFER. No, 85 feet.

The CHAIRMAN. You could take through even a larger vessel than the *Delaware* type?

Colonel GOETHALS. A foot on either side would be ample.

The CHAIRMAN. A vessel of 98-foot beam would be the capacity of a 100-foot lock?

Colonel GOETHALS. I doubt if a naval officer would want to do it. I would not hesitate to do it. On the Tennessee River, when I was there, they built their boats and barges so as to barely get into the locks. On the Ohio River they do the same thing.

Mr. MADDEN. They do it on the canals, too.

Colonel GOETHALS. They build two boats, put them side by side, and get through.

Mr. TAYLOR. One question I want to ask you as to the play. The narrower the lock, the less the play?

Colonel GOETHALS. Yes, the less swing back and forth.

Mr. TAYLOR. Is there much play, anyway?

Colonel GOETHALS. Yes, the water causes considerable swirl when entering, and as the water gradually rises currents develop.

COST OF ENLARGEMENT OF LOCKS.

The CHAIRMAN. If the plan as to the size of the locks were changed, making the locks 110 feet wide, and increased also in length, would there be any loss now in consequence of the change?

Colonel GOETHALS. No; none at all. This is the time for it to be made, if made.

The CHAIRMAN. Can you give us an approximate idea of the extent to which it would increase the cost of the locks?

Colonel GOETHALS. It would increase the cost of the locks about 10 per cent for 110 feet; for 115 feet width, 15 per cent; for 120 feet, 20 per cent.

Mr. GILLET. That is 1 per cent a foot?

Colonel GOETHALS. Very nearly. For 125 feet, it would be 25 per cent. That is for the Gatun Lock. For the Pedro Miguel Lock, for 110 feet, it is 13 per cent; for 115 it is 20 per cent; for 120 it is 25 per cent, and for 125 feet it is 33 per cent.

Mr. TAYLOR. Why any difference, Colonel, between those points?

Colonel GOETHALS. The cost of a single lock is greater than the cost of any one of a flight of three, or at Pedro Miguel the one lock will cost more than one-third of the flight of three at Gatun. This is due to wing walls, etc.

Mr. KEIFER. That is, it is more expensive to build three separately than to build three together?

Colonel GOETHALS. Yes. Then as to the La Boca locks, 110 feet would be 9 per cent additional; 115 feet would be 13 per cent; 120 feet is 18 per cent, and 125 feet is 22 per cent.

The CHAIRMAN. Now can you give us the average per cent of increase for all?

Colonel GOETHALS. I should say about 15 per cent. That would be for 115 feet.

The CHAIRMAN. Could you give the average increase of cost by increasing the width 10 feet, making the lock 110 feet?

Colonel GOETHALS. Yes; about 12 per cent for 110 feet.

The CHAIRMAN. What is the estimated cost of the locks?

Colonel GOETHALS. The Gatun locks, the flight of three locks, \$22,195,000. Pedro Miguel is \$10,500,000, and the La Boca locks are \$18,000,000.

The CHAIRMAN. Have you figured there, in dollars and cents, the total increase in cost in consequence of widening all the locks as suggested?

Colonel GOETHALS. The total cost of all the locks at the present width is practically \$51,000,000. For the 110-foot width it would be \$56,000,000. For the 115-foot width it would be \$58,600,000. For 120 feet it would be \$61,000,000, and for 125 feet it would be \$66,000,000. In other words, it would cost \$14,000,000 more for locks if we go up to 125 feet.

The CHAIRMAN. Is there any greater risk in the operation of a wide lock, or a lock of 110 feet, than there is in the operation of a lock of 100 feet width?

Colonel GOETHALS. I do not think so. The gates are made practically floating. You have got additional weight to move around, and it increases the power of machinery that you have got to install.

The CHAIRMAN. Is that taken into account in your estimate of the additional cost?

Colonel GOETHALS. The estimated cost of locks included the estimated cost of increased gates as well.

Mr. MADDEN. And the operating machinery?

Colonel GOETHALS. It is all figured out on the percentage basis.

The CHAIRMAN. Is there any difference in the cost of maintenance?

Colonel GOETHALS. There ought not to be. The cost of maintenance ought to be the same. The Germans, as I see by the newspapers, are increasing the width of the Kiel Canal locks to 145 feet. The necessity for this increase is not merely for naval purposes but because of tidal currents, as I understand it. I do not think commercial vessels will ever go up to the extent of requiring greater width than 100 feet.

Mr. BRICK. Please explain why.

Mr. GILLET. What is the purpose in increasing the locks in Germany?

Colonel GOETHALS. I presume partly for naval purposes as to length. I have seen none of the details that prompted that plan, except the statement in the papers that Germany had decided to increase the width of the locks and the depth of the miter sill and make an increased length.

Mr. GILLET. You understand it is no longer a question under consideration?

Colonel GOETHALS. That is what I understand.

Mr. KEIFER. Did not the newspapers tell us that there are now under process of construction or preparation plans for much larger vessels than the *Lusitania*, up to as high as 42,000 tons?

Colonel GOETHALS. Yes; but the commercial vessel would never need the protection that the warships need.

Mr. KEIFER. What does that mean? I believe the largest passenger vessel now in existence is a combination ship, perhaps of 28,000 or possibly 32,000 tons. They are larger than the *Lusitania*. I do not know what the width would be.

Mr. MADDEN. They are only 75 feet wide.

Mr. BRICK. I think the Colonel can answer. He says we need it for naval purposes, not for merchant marine purposes.

Colonel GOETHALS. Increased beam of battle ships is made necessary to carry the increase in armament and to secure protection at

the sides against torpedo boat attacks. The tonnage of the war ship still greatly exceeds the tonnage of the commercial vessel.

The CHAIRMAN. The excavation there is part of the Pedro Miguel Division. That is for locks?

Colonel GOETHALS. Yes; we are excavating by the Culebra Division until the grade of the Culebra Cut (reference 40) is reached. Then it will be turned over to the La Boca Lock Division for excavation of lock site and the construction of the locks.

LENGTH OF LOCKS.

Mr. MADDEN. These locks are constructed two abreast?

Colonel GOETHALS. Yes, side by side. The plan will show them.

Mr. KEIFER. You said the length was 1,000 feet. You mean the length of each slip? That would be 3,000 feet?

Colonel GOETHALS. Yes, that would be more than that. That is, the usable length is 1,000 feet, and you have got to allow for the swinging of the gates.

Mr. KEIFER. You mean 1,000 feet of clear water?

Colonel GOETHALS. Yes, usable length.

Mr. KEIFER. And that would mean 3,000 feet of clear water?

Colonel GOETHALS. Yes; it would be more than that. It would be 3,000 plus the length of the gate.

Mr. BURLESON. It would be the width of three gates.

Mr. KEIFER. All the locks are built in duplicate at Gatun, Pedro Miguel, and La Boca?

Colonel GOETHALS. Yes, sir. Here [submitting blueprint] the locks are right on down.

Mr. TAYLOR. It is practically making a double canal?

Colonel GOETHALS. Exactly; and the Consulting Board proposed in their recommendation that vessels traveling in one direction should use one side and those traveling in another direction the other side. If anything happens to one they can go to the other.

Mr. KEIFER. What is the width of the dividing wall?

Colonel GOETHALS. About 60 feet, as figured now. That is made of concrete, just as the walls of the lock are.

Mr. TAYLOR. That doubles the capacity of your locks at once?

Colonel GOETHALS. Yes, sir.

Mr. BURLESON. If I understand it, you have at La Boca two double locks, at Pedro Miguel one double lock, and at Gatun three double locks?

Colonel GOETHALS. Yes, sir.

Mr. BURLESON. In addition to the rock toe of this dam, do you propose to throw material beyond the toe of rock?

Colonel GOETHALS. On the water side?

Mr. BURLESON. Yes.

Colonel GOETHALS. Not unless it is necessary to dispose of waste. We have fixed the minimum dimensions, and we have got to get rid of our materials both from the Cut and from the lock sites. The material that we have been excavating has been wasted to a great extent, and we have taken up the scheme now of utilizing everything

where it will do the most good. For instance, we started out with the excavated material and put it on the relocation of the Panama Railroad. There it will save cutting in order to borrow material for building embankments. We will utilize material that we are excavating from the Gatun and Chagres divisions. If we can get that most economically to the dam site and increase the width of the toes on the dam, we will dump it there in case it is necessary, and it will give it added strength.

Mr. TAYLOR. It is the cheapest way to distribute the waste?

Colonel GOETHALS. Yes, sir.

EXCAVATION BY THE FRENCH.

The CHAIRMAN. In the construction of the Canal under the present plan, how much excavation that was done by the French will be utilized?

Colonel GOETHALS. Well, it has been approximately figured to be about 36,000,000 yards of excavation.

Mr. GARDNER. That is nearly all between Gatun and La Boca?

Colonel GOETHALS. Oh, yes; it is all between Gatun and La Boca, and the largest part of that is in the Culebra Cut.

Mr. GARDNER. I supposed a part of it was on the Pacific side beyond where the locks are to be at La Boca.

Colonel GOETHALS. No; the French have done no dredging along the line that is adopted for the channel on the Pacific side.

The CHAIRMAN. What percentage of that excavation made by the French that we are utilizing is the total excavation made by the French?

Mr. MADDEN. That would be about 50 per cent, if they excavated 70,000,000 yards and we used 36,000,000 yards of it.

Colonel GOETHALS. The total excavation of the French at all points and divergent channels was 70,000,000 of yards.

The CHAIRMAN. Then we are using a little more than half of what the French excavated?

Colonel GOETHALS. Yes. We may be using a little more than that, but I have heard it stated that we are using 36,000,000 yards.

Mr. BURLESON. These 36,000,000 yards were the easiest moved?

Colonel GOETHALS. No; not all of it. They have cut down the top of the Culebra Divide.

Mr. KEIFER. They have cut the top of it off.

The CHAIRMAN. What is the estimated excavation that we will have to do?

Colonel GOETHALS. On April the 1st the total amount to be excavated for the 85-foot level in the Canal prism was 101,050,000 yards; at the lock site, 7,965,000 yards; for regulating work and diversion channel, 2,150,000 yards; and dredging in the old channel from Cristobal to Gatun, to open the construction channel and at Panama to keep the channel open at La Boca, extra work that we are obliged to do, 3,350,000 yards, making a total of 114,515,000 yards.

Mr. BURLESON. Does that include the 500,000 yards to be removed by reason of the Cucuracha Slide?

Colonel GOETHALS. Yes; it includes the 500,000 cubic yards to be removed on account of the Cucuracha Slide.

EXCAVATION BY AMERICANS.

Mr. TAYLOR. Is there an estimate of how much we have removed since we have been in occupation?

Colonel GOETHALS. Yes, sir.

Mr. TAYLOR. Say, up to the 1st of November?

Colonel GOETHALS. The amount excavated under American control in the Culebra Division to November 1, 1907, is 11,221,730 cubic yards.

Mr. KEIFER. That is what you have excavated?

The CHAIRMAN. Yes; up to November 1st.

Colonel GOETHALS. That is only in that part of the Canal prism included in the Culebra Division; the total excavation at all points under American control to November 1, 1907, is 18,706,636 cubic yards.

The CHAIRMAN. That is between what dates, so that we can get at it? That is about one-half of the amount of the French excavation that we are utilizing.

Colonel GOETHALS. Excavation began in May, 1904.

The CHAIRMAN. Then that is between May, 1904, and November 1, 1907?

Colonel GOETHALS. Yes, sir. We have got this statement of the excavation [presenting document]. That might be well to print in the record.

The CHAIRMAN. Yes. Give it to the stenographer and it will be printed in full.

Following is the statement referred to:

Total monthly record of excavation since American occupation.

[Amounts are stated in cubic yards, place measurement.]

BY STEAM SHOVELS.

CULEBRA DIVISION.

Month.	1904.	1905.	1906.	1907.
January.....		70,650	120,990	596,750
February.....		75,200	188,410	639,112
March.....		132,840	239,178	815,270
April.....		126,749	218,177	879,527
May.....	27,556	75,935	196,209	690,365
June.....	32,551	78,905	212,623	624,598
July.....	31,699	78,570	159,789	770,570
August.....	35,056	49,210	244,823	788,866
September.....	25,220	44,065	291,452	753,468
October.....	19,665	82,940	337,009	834,499
November.....	28,880	60,540	221,642	
December.....	42,935	70,660	307,689	
Total.....	243,472	914,254	2,702,991	7,361,013

Cubic yards.

Total 1904.....	243,472
Total 1905.....	914,254
Total 1906.....	2,702,991
Total 1907 (ten months only).....	7,361,013
Grand total to November 1, 1907.....	11,221,730

There were also removed from the Chagres Division in September and October 49,373 cubic yards, of which 47,173 cubic yards were from the Canal prism.

Total monthly record of excavation since American occupation—Continued.

BY STEAM SHOVELS—Continued.

GATUN.

Locks, Dams, and Spillways.

Month.	1906.		1907.	
	From Canal prism.	Outside of Canal prism.	From Canal prism.	Outside of Canal prism.
January.....			47,539	
February.....			70,177	
March.....			100,151	
April.....			103,459	
May.....			70,523	
June.....			71,181	3,323
July.....			59,537	14,623
August.....			78,357	26,866
September.....			123,788	
October.....	3,055		177,013	
November.....	11,517			
December.....	12,506			
Total.....	26,628		901,690	45,326

Total to November 1, 1907, 973,634 cubic yards.

LA BOCA.

January.....				
February.....				
March.....			538	3,367
April.....				1,756
May.....				762
June.....				4,007
July.....			4,725	9,047
August.....			6,874	8,091
September.....			5,431	7,575
October.....			7,108	
November.....				
December.....				
Total.....			24,676	36,205

Total to November 1, 1907, 60,881 cubic yards.

Grand total by steam shovels to November 1, 1907, 12,376,264 cubic yards.

BY DREDGES.

COLON.

Month.	1905.		1906.		1907.	
	In Canal prism.	Outside of Canal prism.	In Canal prism.	Outside of Canal prism.	In Canal prism.	Outside of Canal prism.
January.....				90,700		111,100
February.....				105,500		110,002
March.....				126,650		84,145
April.....				87,200		69,899
May.....				64,875		123,847
June.....		60,700		73,500	17,000	107,118
July.....		58,050		69,000	a 104,322	5,600
August.....		53,183		54,000	204,427	5,127
September.....		48,637		123,540	403,842	17,000
October.....		48,800		111,020	409,632	16,650
November.....		38,000		63,200		
December.....		92,250		58,400		
Total.....		399,820		1,027,645	1,139,223	660,478

Total to November 1, 1907, 3,227,166 cubic yards.

* On this division in August, September, and October there was also removed from the prism 70,646 yards in the Mindi Hills by steam shovels.

Total monthly record of excavation since American occupation—Continued.

BY DREDGES—Continued.

LA BOCA.

Month.	In Canal prism.	Outside of Canal prism.	In Canal prism.	Outside of Canal prism.	In Canal prism.	Outside of Canal prism.
January.....				95,940		94,710
February.....				95,940		93,480
March.....				116,820		92,319
April.....				110,700		104,855
May.....				112,340		122,157
June.....		50,676		62,667	64,352	67,228
July.....		41,533		98,400	108,338	
August.....		54,530		111,930	168,284	
September.....		114,308		105,780	144,625	9,350
October.....		81,636		97,170	357,122	
November.....		71,176		92,968		
December.....		71,004		90,528		
Total.....		485,153		1,191,233	842,721	584,099

Total to November 1, 1907, 3,103,206 cubic yards.

Grand total by dredges to November 1, 1907, 6,330,372 cubic yards.

Grand total by steam shovels and dredges to November 1, 1907, 18,706,636 cubic yards.

French and American records.

Highest elevation on new center line of Canal before excavation began by the French:	Feet.
At Culebra.....	312
At Bas Obispo.....	233
Greatest depth of excavation by the French:	
On I. C. C. Canal axis at Culebra.....	161
On I. C. C. Canal axis at Bas Obispo.....	148
Greatest center-line depth remaining to be excavated when Americans took control in order to reach the bottom of an 85-foot level Canal:	
At Culebra—at same point as before.....	111
At barrier on Contractors Hill, about.....	140
At Bas Obispo.....	45
Amount excavated under American control:	Cubic yards.
In Culebra Division (Canal prism) to November 1, 1907.....	11, 221, 730
Total excavation at all points under American control to November 1, 1907.....	18, 706, 636
Total excavation by the French at all points and including diversion channel, about.....	70, 600, 006
Total estimated excavation required April 1, 1907, for an 85-foot level canal:	
In Canal prism.....	101, 050, 000
On lock sites.....	7, 985, 000
For regulating work and diversion channel.....	2, 150, 000
Dredging in old channel, Cristobal to Gatun, to open construction channel, and at Panama, to keep channel open to La Boca.....	3, 350, 000
Total.....	114, 515, 000

Mr. GARDNER. Colonel, what per cent excavated by the French will have to be removed a second time, or removed by the Americans, because of extending the width of the prism of the Canal?

Colonel GOETHALS. We will not have to remove any removed by Americans on account of the increased width.

Mr. GARDNER. But what of the French?

Colonel GOETHALS. We will have very little of that to remove, because their dumps are pretty well removed from the line. We occasionally strike in a French dump. We have one to remove at Pedro Miguel, where it strikes the line of the lock site.

EQUIPMENT AND FORCE NOW EMPLOYED.

The CHAIRMAN. Colonel, can you give us an idea of the equipment and the number of men employed in the actual work of constructing the Canal?

Colonel GOETHALS. Our force reached a maximum about a week ago, when we had something like 31,000 men on the pay rolls, all told, for the Commission and the Panama Railroad.

The CHAIRMAN. How many of those were laborers, and how many were clerks and skilled mechanics?

Colonel GOETHALS. I can not give you those figures, but you can call on Mr. Jackson Smith for that information when he comes in. He has got that data. Here is a comparative statement from the Canal Record:

Gold employees.....	4,992
West Indian laborers.....	15,702
European laborers.....	5,134

The CHAIRMAN. Now as to the equipment.

Colonel GOETHALS. The following is from the Canal Record:

CONSTRUCTION PLANT.

The following is a statement of principal items of equipment in service or available on the Isthmus June 30, 1906, and June 30, 1907:

Equipment.	June 30, 1906.	June 30, 1907.
Steam shovels:		
45-ton.....	1	3
70-ton.....	15	28
95-ton.....	23	32
Locomotives:		
French.....	100	100
New American.....	30	184
Cars:		
French dump.....	541	260
American.....	324	455
American, flat (wood).....	1,061	1,501
American, flat (steel).....	500	500
Lidgerwood unloaders.....	12	18
Bank spreaders.....	13	13
Unloading plows.....	22	33
Track shifters.....	0	3
Pile drivers.....	1	7

Those were all available. All the steam shovels are in commission, and the pile drivers, etc. Some of our locomotives are not yet in commission.

The CHAIRMAN. Have you to-day all the equipment that you could utilize in the construction of the Canal?

Colonel GOETHALS. No; we have not got all the cars, nor all the steam shovels; but we have contracts made for everything of that kind.

^a These include clerks and mechanics.

The CHAIRMAN. When were those contracts made?

Colonel GOETHALS. Some time after May last. We have ordered 16 additional 95-ton steam shovels. The Marion Company got that contract, 98 tons. We have ordered 14 70-ton shovels, and a few 45-ton shovels for the Panama Railroad.

We are behind 300 flat cars, because they were burned in a fire in the States, and they are still to be delivered; and 500 dumps that are contracted for with Mr. Oliver, that will be delivered soon; and when these are delivered we think now we will have sufficient equipment of that kind to complete the work.

The CHAIRMAN. With the equipment now ordered and in commission, you will have all the equipment you will require?

Colonel GOETHALS. Yes; of that character. We will have to replace parts, and practically turn out new cars and things of that kind; but the total number ordered and in commission will be, we think, sufficient to complete the job. As we go on down along the Culebra Cut we will require fewer steam shovels, for instance, and train service will keep up for the time, but as we go on lower our train service and steam shovels will be cut off. We can not utilize them then to advantage.

RATE OF EXCAVATION.

The CHAIRMAN. At what rate are you excavating now per month? How many cubic yards?

Colonel GOETHALS. We are trying to keep up a rate of one million and a half all along the line.

The CHAIRMAN. During the month of October what is your record of excavation?

Colonel GOETHALS. The total excavation from the Canal prism for October was 1,868,929 cubic yards, of which 1,085,325 cubic yards were removed by steam shovels; the rest by dredges.

Mr. KEIFER. That is the average?

Colonel GOETHALS. Yes, sir.

Mr. BRICK. Do you expect to increase?

Colonel GOETHALS. Yes; but this month there will be a decrease on account of the number of holidays. I am anxious to get down to a systematic working basis and to maintain it. I want to arrange the work so as to remove a stated number of cubic yards from the Culebra Division for each month during the dry season, and a certain number of cubic yards during each month of the wet season from the Culebra Division, and then not vary from that or try "to make the dirt fly," but keep up a steady pace.

Mr. MADDEN. It will be more economical?

Colonel GOETHALS. Yes; to get the force up to a definite number and keep up the pace.

Mr. BURLESON. That will give you a standard?

Colonel GOETHALS. Yes. We are not in condition to do that as yet, and we will not be until we can find out approximately how long it will take us to complete the Gatun dam. To my mind that is the deciding feature as to the time of completing the work.

Mr. MADDEN. There would be no advantage in completing the excavation before the locks were completed?

Colonel GOETHALS. Not the slightest.

Mr. MADDEN. So that if it should take less men and facilities than you have now to do the excavating and complete the excavating at the same time that the locks are completed, your force could be reduced and organized on a more economical basis?

Colonel GOETHALS. The force could be worked more economically and moved from one part of the work to the other.

Mr. KEIFER. When do you expect to take up the work of building the locks and dams?

Colonel GOETHALS. We are in hopes we will begin to lay concrete in the Gatun locks in January, 1909. We have practically started on the Gatun dam now. We are preparing the way of getting in the trap rock from Bas Obispo to form the toe of the dam. We have practically begun work at every part of the canal, every point along the line.

The CHAIRMAN. Work is going on all along the line?

Colonel GOETHALS. Yes, sir; in every division.

Mr. KEIFER. You speak of starting work at the Gatun locks. Why not at the others? You do not want to start that so soon?

Colonel GOETHALS. We expect to begin that, but we are always figuring that inasmuch as that is the biggest mass, it measures the completion of the whole. We are practically excavating the site of the Pedro Miguel Lock now, and it is to be turned over to the Lock Division as soon as we can move the railroad, work on this change of track being in progress.

WORK OF THE STEAM SHOVELS.

Mr. MADDEN. Is there any record showing the amount of idle time with the shovels on account of lack of facilities for the removal of the excavation?

Colonel GOETHALS. We have a daily record showing how much time each shovel is working each day. We have that reported every day, but we have made no compilation of that data as yet. That is largely a question of train service. We can get a more efficient shovel service when we get our cars.

Mr. MADDEN. That is what I asked, as the result of the lack of train service.

Mr. TAYLOR. Do I understand you to mean, Colonel, that the shovels can really do more now than you can remove, for lack of train facilities?

Colonel GOETHALS. If we had the proper train service, so that one train could pull in right after another is loaded we could keep these steam shovels going eight hours a day; but we have not the cars necessary for that nor the tracks sufficient in number and length to remove the trains to the dumps, and we are handicapped and will always be handicapped, because we are contracted necessarily into a comparatively close area. We have only 50 miles of the Isthmus. It is due partly to the fact that we have not got a sufficient number of cars, but we could not go beyond a certain limit even if we had them.

Mr. TAYLOR. You are limited by the circumstances surrounding the work?

Colonel GOETHALS. Yes.

Mr. MADDEN. Do you want to be understood as saying that it will

not be possible to supply the facilities necessary for keeping the shovels moving on account of the difficulty in finding dumping grounds?

Colonel GOETHALS. In getting to the dumping grounds. We have not got the necessary train service.

Mr. MADDEN. Your answer would imply that.

Colonel GOETHALS. I do not want that inference to be put upon it. We have plenty of dumping grounds if we could get out to them. One train has got to wait for another to be dumped.

Mr. BURLESON. And an engine has got to get off the track to allow another to come in?

Colonel GOETHALS. Yes.

Mr. MADDEN. You do not have to put all the trains on one track, do you?

Colonel GOETHALS. No. We have to get trains out in order to put others in. That is especially so at Tabernilla, our biggest dump.

COST OF EXCAVATION.

The CHAIRMAN. Have you a record, Colonel, of the cost of excavation per cubic yard?

Colonel GOETHALS. We are trying to get that into shape, Mr. Chairman.

The CHAIRMAN. Have you, since you have taken charge, adopted a system for the purpose of getting down to the exact cost per cubic yard of the excavation?

Colonel GOETHALS. We are adopting a system of engineering cost-keeping in this office. We could not get the Examiner of Accounts to do it, but we are doing it ourselves, so as to determine what each cubic yard is costing us for excavating, and the various components of it. For instance, in the Culebra Division we have the cost of mining, the cost of steam shovels, the cost of transportation, the cost of dumps and tracks, and the office expenses, so far as the Division Engineer's office is concerned, and other miscellaneous work that can come in; so that in the Culebra Division we have ascertained that it cost us 91 cents a cubic yard for October, which was high because of night work on Cucaracha Slide.

Mr. MADDEN. What does that include, Colonel?

Colonel GOETHALS. Mining, repairs to steam shovels, transportation, the dumping, the cost of tracks, and supervision.

Mr. MADDEN. And what becomes of the "arbitrary?"

Colonel GOETHALS. The "arbitrary" we have not included.

Mr. MADDEN. Have you made any estimate of what it should be?

Colonel GOETHALS. Mr. Stevens estimated that it was 12 cents a yard, but we think it is higher, and we are getting these figures prepared now. We expect to take that from the actual cost of our plant delivered here and erected and divide that by the total number of cubic yards removed, and that will be our "arbitrary."

Mr. MADDEN. So that the machinery would all be charged off at the end of the work?

Colonel GOETHALS. Yes. The price I gave you does include the cost of materials and repairs during the month.

Mr. GARDNER. Is it more expensive to remove the spoil in the Culebra Division than in any other?

Colonel GOETHALS. No. The Chagres Division we are just beginning. That is the most expensive. The cost there is \$1.12. At the

Gatun locks we are paying 56 cents, and at the spillway 60 cents. That is because of the situation of the dumps. The dumps are so close that the haul and cost of transportation is less.

Mr. MADDEN. I see your report, Colonel, for the 7th of November shows that the number of steam shovels at work was 41.

Colonel GOETHALS. That is in the Culebra Division.

Mr. MADDEN. The number of hours under steam was 305.15; the number of hours at work, 168.55; number of hours idle, 136.20, or 44 per cent of the total time not at work.

Colonel GOETHALS. That is for that day. Ordinarily they think it is a pretty good work if they do between 50 and 60 per cent.

The following records were submitted by Colonel Goethals:

Isthmian Canal Commission—Output of steam shovels, Culebra Division, November 6, 1907.

Cars: "L. F.," Lidgerwood flats; "W. D.," western dumps; "F. D.," French dumps; "L. W.," large western dumps.]

Number of shovels at work.	Hours at work.	Hours delayed.	Hours under steam.	Number and kind of cars.				Total cubic yards.	Average cubic yards per shovel.	Average cubic yards per shovel per hour worked.
				L. F.	W. D.	F. D.	L. W.			
41.....	166.35	133.25	320	870	690	35	255	30,410	741.7	163.4
					1,850					
									Cubic yards.	Working days.
To date current month.....									129,314	4
Same date previous month.....									162,600	5

223 loads on hand not dumped.

Rainfall, 5 p. m., November 6.

	Inch.
Tabernilla	0.08
Bas Obispo .....	.87
Empire .....	.58
Culebra .....	.45
I.a Boca .....	.82

Derailments.—1 French dump at steam shovel, 121; 1 flat at steam shovel, 50; 1 large western dump at steam shovel, 228.

Delays.—Engine 605—15 m. hot box—went to shops at Las Cascadas—repairing truck—out at 1.25 p. m. Pedro Miguel trains badly delayed by using Panama Railroad main line, Pedro Miguel to Culebra, for empties north, and White House to Pedro Miguel for loads south. Trains very badly delayed 3 p. m. to 4.30 p. m., account engine 231 unloading gravel at Rio Grande bridge.

Daily report of steam shovels, Culebra Division, November 6, 1907.

[Cars: "L. F.," Lidge-wood flats; "W. D.," western dumps; "F. D.," French dumps; "L. W.," large western dumps.]

EMPIRE DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
121.....	13			35		140	Earth.....	8	2.25
125.....	16		28			336	do.....	8	2.15
204.....	13	4	30		48	1,305	Rock.....	8	6.05
205.....	15	44				880	Rock and earth.....	8	6.15
207.....	16	52				1,040	do.....	8	4.50
210.....	18	27				540	Rock.....	8	4.50
212.....	14	13				260	do.....	8	2.25
215.....	15	33			29	1,182	Rock and earth.....	8	4.50
220.....	18	39				780	Earth.....	7	5.10
225.....	19	63				1,260	Rock and earth.....	8	5.55
231.....	14		30		13	594	do.....	8	4.20
232.....	14	23				460	Earth.....	8	2.20
Total (12).....	185	298	88	35	90	8,776		96	51.50

No. of shovel.	Time lost.										
	Mining.	Clear track.	Repairs.	Waiting cars.	Switching.	Derailment.	Repairing track.	Slide.	Cleaning dipper.	Coaling shovel.	Ditching.
121.....	0.35	0.45	0.20	2.00	0.50	0.40				0.15	
125.....		.35	.35	3.10	1.15				0.10		
204.....		.35	.10	.10	1.00						
205.....			.10	.40	1.40					0.10	.05
207.....	1.05		.25	.55	.45						
210.....	1.00		1.05	.35	.10	.20					
212.....	3.40	.50	.20	.25	.20						
215.....		.50	.30	.50	.50			.10			
220.....	.20		.10		1.20						
225.....		.10	.05		1.50						
231.....		.20		2.10	1.05		0.05				
232.....	.05			.15	.15		2.35				2.20
Total (12).....	6.45	4.05	3.50	11.10	11.20	1.00	2.40		.20	.10	.20

CULEBRA DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
50.....	15	9				180	Earth.....	8	1.40
51.....	14	21				420	do.....	8	4.35
105.....	16	46			11	1,118	Rock and earth.....	8	6.20
106.....	15	23				460	Earth.....	8	2.25
122.....	15		100			1,200	Rock and earth.....	8	4.30
124.....	12	30	21			852	Earth.....	8	6.55
127.....	14	17	13			496	Rock and earth.....	6.50	5.20
128.....	14	3				60	Earth.....	8	.45
205.....	14	24			3	534	Rock.....	8	4.15
208.....	12		56			672	Earth.....	5.10	2.30
213.....	14	30	14			768	Rock and earth.....	8	3.55
214.....	13	19	6		1	470	Earth.....	8	3.00
218.....	14	35				700	Rock and earth.....	8	4.80
219.....	15	79				1,580	do.....	8	6.40
222.....	13	67	28			1,676	do.....	8	5.35
230.....	12		105			1,260	Earth.....	8	6.20
Total (16).....	222	403	343		15	12,446		124.00	69.15

24 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Daily report of steam shovels, Culebra Division, November 6, 1907—Continued.

CULEBRA DISTRICT—Continued.

No. of shovel.	Time lost.									
	Mining.	Clearing track.	Re-pairs.	Waiting cars.	Switching.	Derailment.	Repairing track.	Slide.	Cleaning dipper.	Coaling shovel.
50.....				2.20	0.20	3.40				
51.....			0.35	1.30	1.20					
106.....		0.05	.05	.45	.30	.15				
109.....		.10	.45	1.30	1.50		1.20			
122.....		.35	.20	1.50	.45					
124.....		.15		.25	.25					
127.....				.55	.35					
128.....				1.10	.10	5.55				
206.....	0.30	.10		2.15	.50					
208.....				1.40	.60			0.10		
213.....				3.15	.50					
214.....	.30	.15	2.10	1.35	.30					
218.....	.50			.40	.40		1.20			
219.....		.15			.35					0.30
222.....		.15	.20	1.10	.40					
230.....		.40			1.00					
Total (16)...	1.50	2.40	4.15	21.00	11.50	9.50	2.40	.10		.30

BAS OBISPO DISTRICT.

Number of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
111.....	13		17		14	456	Rock and earth	4	2.45
116.....	14		65			780	do	8	6.30
201.....	14				33	594	do	8	6.30
217.....	14		69			828	Rock	8	3.55
221.....	15				54	972	Rock and earth	8	5.00
227.....	12		73			876	Rock	8	4.55
228.....	23				44	792	do	8	5.45
229.....	15	5			5	180	do	8	1.00
Total (8).....	120	{ 5	224	7	{ 150	5,488		60	35.10

Number of shovel.	Time lost.											
	Mining.	Clearing track.	Re-pairs.	Waiting cars.	Switching.	Derailment.	Repairing track.	Slide.	Cleaning dipper.	Coaling shovel.	Rain.	Ditch.
111.....			0.30	0.30	0.15							
116.....		0.15		.45	.40							
201.....	1.35	.35		.20								
217.....	.50	1.00	1.00		.30			0.20	0.25			
221.....			1.20	.30	1.10							
227.....	1.45		.35		.25						0.20	
228.....	.20		.55	.10		0.50						
229.....	2.30		3.50		.40							
Total (8).....	7.00	1.50	8.10	2.15	3.40	.50		.20	.25		.20	

PEDRO MIGUEL.

Number of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
110.....	14	16				320	Rock	8	3.45
202.....	19	43				860	Earth	8	7.00
209.....	14	20				400	Rock	8	6.45
211.....	13	51				1,020	do	8	6.05
224.....	19	34	35			1,100	do	8	6.45
Total (5).....	79	{ 164	35	99		3,700		40	36.20

Daily report of steam shovels, Culebra Division, November 6, 1907—Continued.

PEDRO MIGUEL—Continued.

Number of shovel.	Time lost.										
	Mining.	Clearing track.	Re-pairs.	Waiting cars.	Switching.	Derailment.	Re-pairing track.	Slide.	Cleaning dipper.	Coaling shovel.	No water.
110.....	3.55		0.20								
202.....				0.30	0.30						
209.....				.10	.45				0.20		
211.....	.05	0.30			.10						1.10
224.....	.40	.30	.05								
Total (5).....	4.40	1.00	.25	.40	1.25				.20		1.10

SUMMARY.

District.	Number of steam-shovel men.	Number of men.	Number and kind of cars.				Number of cubic yards.	Hours under steam.	Hours at work.
			L. F.	W. D.	F. D.	L. W.			
Bas Obispo.....	8	120	5	224	.....	150	5,488	60.00	35.10
Empire.....	12	185	298	88	35	90	8,776	96.00	51.60
Culebra.....	16	222	403	343	.....	15	12,446	124.00	69.15
Pedro Miguel.....	5	79	164	35	.....	.....	3,700	40.00	30.20
Total.....	41	606	870	690	35	255	30,410	320.00	196.35

District.	Time lost.										
	Mining.	Clearing track.	Re-pairs.	Waiting cars.	Switching.	Derailment.	Re-pairing track.	Slide.	Cleaning dipper.	Coaling shovel.	No water.
Bas Obispo.....	7.00	1.50	8.10	2.15	3.40	0.50	.....	0.20	0.25	0.20	.....
Empire.....	6.45	4.05	3.50	11.10	11.00	1.00	2.40	.....	.20	.20	2.30
Culebra.....	1.50	2.40	4.15	2.05	11.50	9.50	2.40	.10	.....	.30	.....
Pedro Miguel.....	4.40	1.00	.25	.40	1.25	.....	.....	.....	.20	.....	1.10
Total.....	20.15	9.35	16.40	35.05	28.15	11.40	5.20	.30	1.05	.40	2.80

Daily report of transportation, Culebra Division, November 6, 1907.

[Cars: "L. W.," Large western dumps; "L. F.," Lidgerwood flats; "W. D.," Western dumps; "F. D.," French dumps.]

EMPIRE.

No. of shovel.	Number of engines at work.	Number of trains handled.	Number and kind of cars.				Number of cubic yards.	Average cubic yards per engine.
			L. W.	L. F.	W. D.	F. D.		
131.....	1	5				35	140	140
136.....	1	4			28		336	336
204.....	4	6	48		30		1,304	326
205.....	2	6		44			880	440
207.....	3	6		52			1,040	346.6
210.....	2	2		27			540	270
212.....	1	2		13			260	260
215.....	4	5	29	33			1,182	295.5
220.....	2	9		30			780	390
225.....	4	9		63			1,260	315
231.....	2	3	13		30		694	297
232.....	1	4		23			460	460
Total (12).....	27	61	90	298	88	35	8,776	321.3

CULEBRA.

50.....	1	4		9			180	180
51.....	1	14		21			420	420
106.....	3	5	11	46			1,118	372.6
109.....	1	12		23			460	460
123.....	3	8			100		1,200	400
124.....	2	4		30	21		862	431
127.....	1	6		17	13		406	406
128.....	1	1		3			60	60
206.....	2	5	3	24			534	267
208.....	2	7			56		672	336
213.....	2	5		30	14		768	384
214.....	1	6	1	19	5		470	470
218.....	2	4		35			700	350
219.....	5	6		79			1,580	316
222.....	5	7		67			1,676	335.2
230.....	4	8			105		1,260	315
Total (16).....	36	102	15	403	343		12,446	346.7

BAS OBISPO.

111.....	1	4	14		17		456	456
116.....	1	5			65		780	780
201.....	1	4	33				594	594
217.....	2	13			69		828	414
221.....	1	6	54				972	972
227.....	1	9			73		876	876
228.....	1	5	44				792	792
229.....	1	3	5	5			190	190
Total (8).....	9	49	150	5	224		5,488	600.7

PEDRO MIGUEL.

110.....	1	2		16			320	320
202.....	2	4		43			860	430
209.....	1	2		20			400	400
211.....	4	4		51			1,020	255
224.....	4	5		34	35		1,100	275
Total (5).....	12	17		164	35		3,700	308.3

Daily report of transportation, Culebra Division, November 6, 1907—Cont'd.

PEDRO MIGUEL—Continued.

Miscellaneous.	Number of engines at work.	Remarks.
Switching.....	10	1 Paraiso; 2 Pedro Miguel; 2 Las Cascadas; 1 Bas Obispo; 1 Empire; 1 Gorgona; 1 Tabernilla; 1 Culebra.
Spreaders.....	7	2 Pedro Miguel; 2 La Boca; 1 Juan Grande and Mamet; 2 Tabernilla; 1 Rio Grande.
Unloaders.....	11	4 Pedro Miguel; 2 La Boca; 1 Juan Grande and Mamet; 4 Tabernilla.
Coaling shovels.....	2	1 Paraiso, Pedro Miguel, and Corozal; 1 Cableway and Empire.
Labor trains.....	2	1 Paraiso, Pedro Miguel, and Corozal; 1 Culebra and Empire.
Track shifters.....	4	1 La Boca; 1 Juan Grande and Mamet; 1 Tabernilla; 1 Pedro Miguel.
Work trains.....	10	1 Pedro Miguel crane; 1 track, Pedro Miguel; 1 ballast; 1 Bas Obispo crusher; 1 Empire crane; 1 steam shovel supply; 1 Empire track; 1 Rio Grande crusher; 1 local supply; 1 L. and Q. Culebra.

SUMMARY.

	Number of engines at work.	Number of trains handled.	Number and kind of cars.				Number of cubic yards.	Average cubic yards per engine.
			L. W.	L. F.	W. D.	F. D.		
Steam-shovel engines.....	84	130	229	255	870	690	35	30,410
Miscellaneous.....	46							

Daily report of dumps, Culebra Division, November 6, 1907.

[L. W., large western dump cars; L. F., Lidgerwood flat cars; W. D., western dump cars; F. D., French dump cars. Under "Remarks" is shown all work, other than actual dumping, performed by dump gangs.]

Name and number of dump.	Men.	Hours worked.	Hours dumping.	Delays to dumps.	Trains dumped.
Tabernilla.....	716	6,750	.....	.....	31
Mamet.....	38	287	15	Delayed, 5' dirt.....	4
Juan Grande.....	39	348	17	.....	3
Gorgona (2).....	109	924	104	.....	2
Chagres (1-2-3).....	70	560	128	.....	21
Haut Obispo.....	48	364	40	Washout of dump.....	5
Las Cascadas (a2).....	64	552	66	.....	14
White House.....	12	94	8	Delayed, 1' rain.....	1
Culebra (1-2).....	96	1,019	202	.....	17
Rio Grande (4-5).....	39	452	10	.....	7
Pedro Miguel.....	39	231	.....	Delayed, 4' dirt.....	2
Miraflores.....	33	262	.....	do.....	8
Sosa dam (1 N).....	54	467	.....	.....	4
Sosa dam (2 N).....	48	425	.....	.....	6
Sosa dam (1 S).....	51	426	.....	.....	3
Sosa dam yard.....	67	574	.....	.....	.....
La Boca locks (T).....	16	144	.....	.....	4
La Boca beach (11).....	51	461	.....	Locks.....	2
La Boca yard.....	46	382	.....	Relocation.....	.....
La Boca (7).....	36	328	.....	do.....	.....
La Boca (8).....	43	371	.....	do.....	3
La Boca.....	7	58	58	Lidgerwood.....	.....
Total.....	1,728	15,179	648	.....	137
Obispo diversion.....	21	151	.....	From steam shovel 121 and 126.....	6

Daily report of dumps, Culebra Division, November 6, 1907—Continued.

Name and number of dump.	Number and kind of cars.				Number of cubic yards.	Remarks.
	L. W.	L. F.	W. D.	F. D.		
Tabernilla.....		406			9,920	2,429 hours surface, 571 level, 3,006 raise, 126 repairing switch, 118 ditching.
Mamel.....	58				1,044	100 hours level, 172 raise.
Juan Grande.....	43				774	236 hours surface, 100 level.
Gorgona (2).....	30				540	90 hours surface, 484 grade, 156 level, 90 hours raise.
Chagres (1-2-3).....	100		46		2,352	29 hours surface, 120 level, 283 raise.
Haut Obispo.....	19		17		546	64 hours grade, 109 level, 151 raise.
Las Cascadas (a2).....			74		888	246 hours grade, 99 level, 141 raise.
White House.....			15		180	86 hours level.
Culebra (1-2).....			236		2,832	162 hours surface, 146 level, 340 raise.
Rio Grande (4-5).....			56		672	399 hours surface, 43 raise.
Pedro Miguel.....		32			640	331 hours raise—relocation.
Miraflores.....		111			2,220	190 hours surface, 72 level—relocation.
Sosa dam (1 N).....			57		684	467 hours raise.
Sosa dam (2 N).....		80			1,600	425 hours level.
Sosa dam (1 S).....		48			960	426 hours level.
Sosa dam yard.....						207 hours grade, 139 level, 40 lay, 99 feet.
La Boca locks (T).....		66			1,320	144 hours raise.
La Boca beach (11).....		29			580	461 hours level.
La Boca yard.....						130 hours surface, 252 raise.
La Boca (7).....						87 hours surface, 241 raise.
La Boca (8).....		48			960	371 hours level.
Total.....	280	910	501		28,712	
To Panama Railroad for Paraiso spur.			24		288	
Obispo diversion.....			42	28	616	161 hours grade outside prism.

Isthmian Canal Commission—Output of steam shovels, Culebra Division, November 7, 1907.

[Cars: "L. F.," Lidgerwood flats; "W. D.," western dumps; "F. D.," French dumps; "L. W.," large western dumps.]

Number of shovels at work.	Hours at work.	Hours delayed.	Hours under steam.	Number and kind of cars.				Total cubic yards.	Average cubic yards per shovel.	Average cubic yards per shovel per hour worked.
				L. F.	W. D.	F. D.	L. W.			
41.....	168.55	130.20	305.15	849	586 1,801	21	155	26,826	654.3	159
									Cubic yards.	Working days.
To date current month.....									156,140	5
Same date previous month.....									179,410	6

Rainfall, 5 p. m.

	Inch.
Tabernilla.....	0.13
Bas Obispo.....	.15
Empire.....	.43
Culebra.....	.35
La Boca.....	1.23

Derailments.—1 flat at steam shovel, 224; 1 flat at steam shovel, 211.

Delays.—Engine 612, 1 hour at Tabernilla, repairing train line between engine and tank. Engine 605, 15 minutes hot box on engine. Pedro Miguel trains delayed by using Panama Railroad main line, Pedro Miguel to Culebra and Whitehouse to Pedro Miguel, for empties. 178 loads on hand not dumped.

Daily report of steam shovels, Culebra Division, November 7, 1907.

[Cars: "L. F." Lidgerwood flats, "W. D." western dumps, "F. D." French dumps, "L. W." large western dumps.]

EMPIRE DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
121.....	13			21		84	Earth.....	8	1.30
125.....	17		21			232	do.....	8	1.35
204.....	13	9	17		4	458	Rock.....	5.10	3.25
205.....	14	47				940	Rock and earth....	8	5.40
207.....	15	50				1,000	do.....	8	5.15
210.....	15	27				540	do.....	8	3.55
212.....	15	65				1,300	Earth.....	8	4.45
215.....	14	48	9		13	1,302	Rock and earth....	8	5.10
220.....	16	16				320	do.....	8	3.00
225.....	18	63				1,260	Earth.....	8	6.25
231.....	15	4	30			440	Rock and earth....	8	5.15
232.....	15	64				1,280	Earth.....	8	7.05
Total (12) ..	180	393	77	21	17	9,174		93.10	53.00
			508						

No. of shovel.	Time lost.								
	Mining.	Clearing track.	Repairs.	Waiting cars.	Switching.	Cleaning dipper.	Rain.	Labor.	Repairing track.
121.....	0.40	0.25	0.10	4.30	0.40	0.05			
125.....		.30	.05	4.10	1.30	.10			
204.....	.20	.20	.30		1.35				
205.....		.10	.15		1.45		0.10		
207.....		.20	1.15		1.00		.10		
210.....	.30	.20	2.35	.20	.20				
212.....	.15		.30	1.05	.50			0.35	
215.....		1.00	1.00		.40	.10			
220.....	1.50	.10	2.20		.40				
225.....			1.25		.10				
231.....	.50	.20		.25	1.00	.10			
232.....			.15		.25				0.15
Total (12)	4.25	3.35	10.20	10.30	9.35	.25	.30	.35	.15

CULEBRA DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
50.....	15	10				200	Earth.....	6.50	2.15
51.....	15	8				160	do.....	4.00	1.50
105.....	17	13	2			284	Rock and earth....	3.15	2.10
109.....	15	18				380	Earth.....	8	3.15
122.....	16		68		15	1,066	Rock and earth....	8	4.05
124.....	14	21	36			852	do.....	8	5.50
127.....	12				14	262	do.....	8	1.50
128.....	16	7				140	Earth.....	8	1.25
205.....	12	24				480	Rock and earth....	8	4.35
213.....	14	49				980	do.....	8	4.50
214.....	13		7			84	do.....	8	.25
215.....	14	30				600	do.....	8	4.00
219.....	17	72				1,440	do.....	8	6.55
222.....	13	58	31			1,532	Earth.....	8	6.05
230.....	14		112			1,344	do.....	8	6.05
Total (15)	219	311	256		29	9,814		110.05	55.35
			506						

30 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Daily report of steam shovels, Culebra Division, November 7, 1907—Continued.

CULEBRA DISTRICT—Continued.

No. of shovel.	Time lost.									
	Mining.	Clearing track.	Repairs.	Waiting cars.	Switching.	Cleaning dipper.	Rain.	Labor.	Repairing track.	Derailment.
50.....			2.20	0.55	1.00		0.20			
51.....				1.50	.20					
106.....		0.35			.30					
109.....			2.35	1.35	.35					
122.....		.35	1.40	1.00	.40					
124.....		.10	.30	.15	1.15					
137.....	6.10									
128.....			2.00	.20	.15					4.00
206.....	.50	.40	.30	.20	.40					.25
218.....		.10		1.55	1.05					
214.....			7.35							
218.....	3.10				.20				0.30	
219.....					.50		.05		.10	
222.....		.30	.20	.30	.35					
230.....		1.00			.55					
Total (15)	10.10	3.40	17.30	8.40	9.00		.25		.40	4.25

PEDRO MIGUEL DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
110.....	15	10				200	Rock.....	8.00	2.30
123.....	18	17				340	Earth.....	8.00	7.10
209.....	14	10				200	Soft rock.....	2.00	2.00
211.....	13	23				460	do.....	8.00	2.15
224.....	20	16	53			956	Rock.....	8.00	5.55
Total (5).	80	76	53	129		2,156		34.00	19.40

No. of shovel.	Time lost.									
	Mining.	Clearing track.	Repairs.	Waiting cars.	Switching.	Cleaning dipper.	Rain.	Labor.	Repairing track.	Derailment.
110.....	5.15		0.25							
128.....			.10		0.40					
209.....										
211.....	.50		4.45		.05					0.05
224.....	.40	0.10				0.30				.45
Total (5).	6.45	.10	5.20		.45	.30				.50

BAS OBISPO DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
52.....	14		14			168	Rock and earth.....	4.00	2.45
116.....	14		5			60	do.....	8.00	2.40
201.....	13				30	540	Rock.....	8.00	5.35
217.....	13		70			840	do.....	8.00	5.20
221.....	15	59				1,180	Rock and earth.....	8.00	5.20
226.....	15		60		10	900	do.....	8.00	2.05
227.....	12		31			372	Rock.....	8.00	6.35
228.....	20					1,008	do.....	8.00	6.00
229.....	15	10				614	do.....	8.00	4.20
Total (9).	131	69	180	368	119	5,682		68.00	40.40

Daily report of steam shovels, Culebra Division, November 7, 1907—Continued.

BAS OBISPO DISTRICT—Continued.

No. of shovel.	Time lost.									
	Mining.	Clearing track.	Repairs.	Waiting cars.	Switching.	Cleaning dipper.	Rain.	Labor.	Repairing track.	Derailment.
52.....	1.15									
116.....									5.20	
201.....	.25	0.20	1.20		0.20					
217.....	2.20	.20								
221.....	.35		.35	0.46	.50					
224.....	2.10		3.30		.15					0.15
227.....				.40	.30					
228.....	1.05	.20		.35						
229.....	3.00	.10	.30							
Total (9).....	10.50	1.10	5.55	1.55	1.55				5.20	15

SUMMARY.

District.	Number of steam-shovel men.	Number of men.	Number and kind of cars.				Number of cubic yards	Character of material.	Hours under steam.	Hours at work.
			L. F.	W. D.	F. D.	L. W.				
Bas Obispo.....	9	131	69	180		119	5,682		68.00	40.40
Empire.....	12	180	393	77	21	17	9,174		98.10	53.00
Culebra.....	15	219	311	256		29	9,814		110.05	55.85
Pedro Miguel.....	5	80	65	53			2,156		34.00	19.40
Total.....	41	610	849	566	21	165	26,826		306.15	168.55

District.	Time lost.									
	Mining.	Clearing track.	Repairs.	Waiting cars.	Switching.	Cleaning dipper.	Rain.	Labor.	Repairing track.	Derailment.
Bas Obispo.....	10.50	1.10	5.55	1.55	1.55				5.20	
Empire.....	4.25	3.35	10.20	10.10	9.35	0.25	0.30	0.35	.15	
Culebra.....	10.10	3.40	17.30	8.40	9.00		.25		.40	4.25
Pedro Miguel.....	6.45	.10	5.20		.45	.30			.50	
Total.....	32.10	8.35	39.05	21.05	21.15	.55	.55	.35	6.15	5.15

Daily report of transportation, Culebra Division, November 7, 1907.

[Cars: "L. W.," large western dumps; "L. F.," Lidgeewood flats; "W. D.," western dumps; "F. D.," French dumps.]

EMPIRE.

No. of shovel.	Number of engines at work.	Number of trains handled.	Number and kind of cars.				Number of cubic yards.	Average cubic yards per engine.
			L. W.	L. F.	W. D.	F. D.		
121.....	1	3				21	84	84
126.....	1	3					252	252
204.....	2	4	4	9	17		456	228
205.....	3	5		47			940	313.3
207.....	4	7		50			1,000	250
210.....	2	3		27			540	270
212.....	4	6		65			1,300	325
215.....	3	6	13	48	9		1,302	534
220.....	1	4		16			320	320
225.....	4	11		63			1,260	315
221.....	1	4		3	30		440	440
222.....	4	10		64			1,280	
Total (12).....	30	66	17	393	77	21	9,174	305.8

* Obispo diversion.

32 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Daily report of transportation, Culebra Division, November 7, 1907—Continued.

CULEBRA.

No. of shovel.	Number of engines at work.	Number of trains handled.	Number and kind of cars.				Number of cubic yards.	Average cubic yards per engine.
			L. W.	L. F.	W. D.	F. D.		
50.....	1	5	.....	10	.....	.....	200	200
51.....	1	7	.....	8	.....	.....	160	160
105.....	1	1	.....	13	2	.....	284	284
109.....	1	8	.....	19	.....	.....	380	380
122.....	4	6	15	.....	68	.....	1,086	271.5
124.....	3	6	.....	21	36	.....	852	284
127.....	1	1	14	.....	.....	.....	252	252
128.....	1	1	.....	7	.....	.....	140	140
206.....	2	4	.....	34	.....	.....	480	240
213.....	3	5	.....	49	.....	.....	990	330.6
214.....	1	1	.....	.....	7	.....	84	84
218.....	2	4	.....	30	.....	.....	600	300
219.....	5	5	.....	72	.....	.....	1,440	288
222.....	5	8	.....	58	31	.....	1,532	306.4
230.....	5	10	.....	.....	112	.....	1,344	268.8
Total (15).....	36	72	29	311	266	.....	9,814	272.6

BAS OBISPO.

52.....	1	3	.....	.....	14	.....	168	168
116.....	1	2	30	.....	5	.....	60	60
201.....	1	5	30	.....	.....	.....	540	540
217.....	1	13	.....	.....	70	.....	840	840
221.....	2	6	.....	59	.....	.....	1,180	590
226.....	2	6	10	.....	60	.....	900	450
227.....	1	4	.....	.....	31	.....	372	372
228.....	2	6	56	.....	.....	.....	1,008	504
229.....	1	6	23	10	.....	.....	614	614
Total (9).....	12	51	119	69	180	.....	5,682	472.5

PEDRO MIGUEL.

110.....	1	1	.....	10	.....	.....	200	200
123.....	1	3	.....	17	.....	.....	340	340
209.....	1	1	.....	10	.....	.....	200	200
211.....	1	3	.....	23	.....	.....	460	460
224.....	2	5	.....	16	53	.....	966	478
Total (5).....	6	13	.....	76	53	.....	2,156	359.3

Miscellaneous.	Number of engines at work.	Remarks.
Switching.....	10	2 Las Cascadas; 1 Paraiso; 1 Empire; 2 Pedro Miguel; 1 Bas Obispo; 1 Gorgona; 1 Tabernilla; 1 Culebra.
Spreaders.....	7	2 Pedro Miguel and Corozal; 1 Juan Grande and Mamel; 2 Tabernilla; 1 Rio Grande; 1 La Boca.
Unloaders.....	11	4 Pedro Miguel and Corozal; 1 Juan Grande and Mamel; 4 Tabernilla; 2 La Boca.
Coaling shovels.....	2	1 Pedro Miguel and Corozal; 1 Cableway and Empire.
Labor trains.....	2	1 Paraiso, Pedro Miguel, and Corozal; 1 Culebra and Empire.
Track shifters.....	4	1 Juan Grande and Mamel; 1 Tabernilla; 1 La Boca; 1 Pedro Miguel.
Work trains.....	10	1 ballast; 1 Bas Obispo crusher; 1 Pedro Miguel crane; 1 track, Empire; 1 mechanical; 1 steam-shovel supply; 1 track, Pedro Miguel; 1 Rio Grande crusher; 1 local supply; 1 L. and Q., Culebra.

SUMMARY.

	Number of engines at work.	Number of trains handled.	Number and kind of cars.				Number of cubic yards.	Average cubic yards per engine.
			L. W.	L. F.	W. D.	F. D.		
Steam-shovel engines, 84.....	130	202	165	849	566	21	26,826	319.3
Miscellaneous, 46.....			1,601					

Daily report of dumps, Culebra Division, November 7, 1897.

[L. W., large western dump cars; L. F., Lidgerwood flat cars; W. D., western dump cars; F. D., French dump cars. Under "Remarks" is shown all work other than dumping performed by dump gangs.]

Name and number of dump.	Men.	Hours worked.	Hours dumping.	Delays to dumps.	Trains dumped.
Tabernilla	692	6,144			32
Mamel	31	266	55	Delayed, 2' dirt.	4
Juan Grande	44	396	44		2
Gorgona	111	979	52		2
Chagres (1-2-3)	69	615	123		18
Haut Obispo	52	441			
Buena Vista (1-2)	26	307	40		3
Las Cascadas (2)	63	559	35		3
White House	12	108	54		2
Culebra	96	839	99		15
Pedro Miguel (1-4)	26	313		Delayed, 30" dirt.	1
Miraflores	33	217		Delayed, 6' dirt.	3
Sesa dam (1 N)	52	462			2
Sesa dam (2 N)	47	432			5
Sesa dam (1 S)	54	479			3
Sesa dam yard	70	520			1
La Boca lock (T)	17	153			2
La Boca beach (11)	50	449		Locks.	2
La Boca (M)	14	121		Relocation.	
La Boca yard	34	237		do	
La Boca (7)	37	354		do	
La Boca (8)	38	336		do	4
La Boca	7	63	63	Lidgerwood	
Total	1,775	14,790	565		104
Obispo diversion	18	152		From steam shovels 121-126	2
Obispo diversion dump	20	174			5

Name and number of dump.	Number and kind of cars.				Number of cubic yards.	Remarks.
	L. W.	L. F.	W. D.	F. D.		
Tabernilla		512			10,240	560 surface, 578 level, 4,313 raise, 255 repairing switch, 428 ditching.
Mamel	64				1,152	100 hours level, 111 raise.
Juan Grande	26				468	352 hours surface.
Gorgona	29				522	156 hours surface, 522 grade, 156 level 93 raise.
Chagres (1-2-3)			111		1,332	58 hours surface, 251 level, 183 raise.
Haut Obispo						182 hours grade, 239 level, 20 laying 66 feet track.
Buena Vista (1-2)			24		288	237 hours surface, 30 raise.
Las Cascadas (2)			48		570	225 hours surface, 18 grade, 149 level 132 raise.
White House	17		13		462	54 hours level.
Culebra			194		2,328	162 hours surface, 111 level, 467 raise.
Pedro Miguel (1-4)		12			240	313 hours raise.
Miraflores		30			600	128 hours surface, 57 level, 32 raise.
Sesa dam (1 N)			25		300	462 hours level.
Sesa dam (2 N)		80			1,600	432 hours raise.
Sesa dam (1 S)		48			960	479 hours level.
Sesa dam yard		16			320	520 hours raise.
La Boca lock (T)		31			620	153 hours raise.
La Boca beach (11)		32			640	449 hours raise.
La Boca (M)						121 hours surface.
La Boca yard						237 hours level.
La Boca (7)						354 hours raise.
La Boca (8)		64			1,280	336 hours surface.
Total	136	825	415		23,928	
To Panama Railroad for Paraiso spur.			21		252	
Obispo diversion			14		168	152 hours grade from outside prism.
Obispo diversion dump			14	21	252	174 hours grade from outside prism.

34 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

*Isthmian Canal Commission—Output of steam shovels, Culebra Division,
November 8, 1907.*

[Cars: "L. F.," Lidgerwood flats; "W. D.," western dumps; "F. D.," French dumps;
"L. W.," large western dumps.]

Number of shovels at work.	Hours at work.	Hours delayed.	Hours under steam.	Number and kind of cars.				Total cubic yards.	Average cubic yards per shovel.	Average cubic yards per shovel per hour worked.
				L. F.	W. D.	F. D.	L. W.			
42.....	179.00	145.35	324.35	{ 919	702	21	237 }	31,154	741.7	174.1
					1,879					
									Cubic yards.	Working days.
To date current month.....									187,564	6
Same date previous month.....									207,580	7

Rainfall, 5 p. m.

	Inch.
Tabernilla.....	0.06
Bas Obispo.....	.01
Empire.....	.31
Culebra.....	.18
La Boca.....	.01

Derailments.—1 French dump at steam shovel 121, 1 western dump at steam shovel 126, 1 flat at steam shovel 205, 1 engine at steam shovel 231, 1 flat at steam shovel 50, 1 flat at steam shovel 213. Engine 280 derailed plow car at crossover in Pedro Miguel yard; delayed 30 minutes. Engine 285 derailed 1 Lidgerwood car on loading track of steam shovel 213; delayed 45 minutes. Engine 232, 1 Lidgerwood car near bridge 53; delayed steam shovels 232, 226, 221, and 225 2 hours each. Engine 249 had spreader off track at Tabernilla dump No. 2; 2.30 for repairs.

Delays.—Engine 232, 12 minutes at Juan Grande for No. 54. Engine 269 broke cable of Lidgerwood No. 23 at Tabernilla; delayed 50 minutes. 202 loads on hand not dumped. Engine 280 had plow car derailed S. end P. M. yard; delayed 10 p. m. trains 10 minutes each; repairs.

Daily report of steam shovels, Culebra Division, November 8, 1907.

[Cars: "L. F.," Lidgerwood flats; "W. D.," western dumps; "F. D.," French dumps;
"L. W.," large western dumps.]

EMPIRE DISTRICT.

Number of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
121.....	11			21		84	Earth.....	8	1.45
126.....	17		28			336	do.....	8	2.10
205.....	14	59				1,180	Rock and earth.....	8	6.26
207.....	16	40				1,800	do.....	8	4.30
210.....	15	49				980	do.....	8	5.15
212.....	16	51				1,020	do.....	8	4.40
215.....	15	40			37	1,466	do.....	8	5.35
220.....	20	40				800	Earth.....	8	4.35
225.....	18	82				1,640	Rock and earth.....	8	6.05
231.....	15	10	28		2	572	do.....	7.30	4.40
232.....	16	30				600	Earth.....	8	2.50
Total (11).	173	{ 401	56	21	39 }	9,478		87.30	48.30
			517						

Daily report of steam shovels, Culcra Division, November 8, 1907—Continued.

EMPIRE DISTRICT—Continued.

Number of shovel.	Time lost.									
	Min- ing.	Clear- ing track.	Re- pairs.	Wait- ing cars.	Switch- ing.	Derail- ment.	Repair- ing track.	Clean- ing dipper.	Coaling shovel.	Waitin g steam.
121.....		0.50		4.15	0.20	0.35	0.15			
126.....		.30	0.20	3.10	1.00	.35		0.15		
206.....		.10	.10		.35	.30			0.10	
207.....	1.00		1.35	.20	.35					
210.....	.35	.20	.30	.15	.30				.35	
212.....	.50	.20	.50		1.20					
215.....		.35	.30		.15			.20	.20	0.25
220.....	1.35	.15	.10		1.25					
225.....		.10	1.10		1.25					.10
231.....	.05	.10	1.10		.05	.15	.55	.10		
232.....				1.05	1.30		1.35		1.00	
Total (11).....	4.05	3.20	5.25	9.05	9.00	1.55	2.45	.45	2.05	.35

CULEBRA DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of mate- rial.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L. W.				
50.....	15	15				300	Earth.....	8	4.40
106.....	17	11				220	Rock and earth.....	4	1.20
109.....	15	32				640	do.....	8	4.10
122.....	16	16	77			1,244	do.....	8	3.40
124.....	14	37				740	do.....	8	6.45
127.....	13	25				500	do.....	8	4.10
128.....	16	10				200	Earth.....	8	.45
206.....	15	18				360	Rock and earth.....	8	3.05
208.....	12		40			480	Rock.....	8	2.40
213.....	14	34				680	Rock and earth.....	8	3.15
214.....	13	31				620	do.....	8	4.40
218.....	13	22				440	Rock and earth.....	8	4.30
219.....	15	83				1,160	do.....	8	7.25
222.....	13	32	129			2,188	Rock and earth.....	8	6.45
230.....	13		105			1,260	Earth.....	8	5.45
Total (15).....	214	366 717	351			11,532		116	63.35

No. of shovel.	Time lost.									
	Min- ing.	Clear- ing track.	Re- pairs.	Wait- ing cars.	Switch- ing.	Derail- ment.	Repair- ing track.	Clean- ing dipper.	Slide.	Rain.
50.....			0.10	1.00	1.10	1.00				
106.....		0.30		.15	.10				1.45	
109.....			1.05	.20	1.30		0.55			
122.....		.20	1.50	.10	.35			1.25		
124.....		.20	.15		.10			0.30		
127.....	0.05		1.45	1.40	.20					
128.....				1.40	.10	4.05	1.20			
206.....	.30	.25	3.45		.15					
208.....	.05			1.45	1.45		1.45			
213.....				.45	1.40	1.00	1.20			
214.....	.50	.10	1.25	.35	.20					
218.....	1.05		2.25							
219.....					.30					0.05
222.....		.25			.40					0.10
230.....		.55			1.00			.20		
Total (15).....	2.35	3.05	12.40	8.10	10.15	6.05	5.20	.50	3.10	.05

36 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Daily report of steam shovels, Culcra Division, November 8, 1907—Continued.

BAS OBISPO DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L.W.				
52.....	14		16			192		8	4.30
111.....	13		48			576		8	3.50
116.....	14		30			360		8	3.15
201.....	14				44	792	Rock.	8	5.20
217.....	14		59			708	do	8	5.00
221.....	15				25	450		8	3.50
226.....	15		74		26	1,356		8	5.00
227.....	13		44			528	Rock.	8	2.50
228.....	19					1,224	do	8	5.25
229.....	15	5				35	do	8	4.30
Total (10)	146	{ 5	271	474	198	{ 6,916		80	44.30
			474						

Time lost.

No. of shovel.	Min- ing.	Clean- ing track.	Re- pairs.	Wait- ing cars.	Switch- ing.	Derail- ment.	Re- pairing track.	Clean- ing dip- per.	Slide.	Rain.	Coal- ing shovel.
52.....	1.10		0.15		2.05						
111.....				1.20	.05		2.45				
116.....				1.30	1.15		2.00				
201.....	.45	0.15		.40	1.00						
217.....	2.30	.30									
221.....				3.20	.20						0.30
226.....					1.45						.15
227.....	1.15	.15	3.05	.35							
228.....	.30		.15	.30	1.00						.20
229.....	2.30	.30			.30						
Total (10)	8.40	1.30	3.35	7.55	8.00		4.45				1.05

PEDRO MIGUEL DISTRICT.

No. of shovel.	Number of men.	Number and kind of cars.				Number of cubic yards.	Character of material.	Hours under steam.	Hours at work.
		L. F.	W. D.	F. D.	L.W.				
110.....	16	9				180	Rock.	8	1.35
123.....	17	8				160	Earth.	8	2.45
202.....	20	12				240	do	1.05	1.05
209.....	14	37				740	Rock.	8	6.25
211.....	13	37	24			1,028	Earth.	8	4.50
224.....	20	44				880	Rock.	8	5.45
Total (6)	100	147	24					41.05	22.25

Time lost.

No. of shovel.	Min- ing.	Clean- ing track.	Re- pairs.	Wait- ing cars.	Switch- ing.	Derail- ment.	Re- pairing track.	Clean- ing dip- per.	Slide.	Rain.	Coal- ing shovel.
110.....	6.25										
123.....					0.15		5.00				
202.....											
209.....				1.25				0.10			
211.....	1.30	0.50	0.40		.10						
224.....	1.00	.25	.50								
Total (6)	8.55	1.15	1.30	1.25	.25		5.00	.10			

Daily report of steam shovels, Culebra Division, November 8, 1907—Continued.

SUMMARY.

District.	Number of steam-shovel men.	Number of men.	Number and kind of cars.				Number of cubic yards.	Hours under steam.	Hours at work.
			L. F.	W. D.	F. D.	L. W.			
Bas Obispo.....	10	145	5	271		198	6,916	80	44.30
Empire.....	11	173	401	56	21	39	9,478	87.30	48.30
Culebra.....	15	214	386	351			11,532	116	63.35
Pedro Miguel.....	6	100	147	24			3,228	41.05	22.25
Total.....	42	633	919	702	21	237	31,154	324.35	179

Time lost.

District.	Mining.	Clearing track.	Repairs.	Waiting cars.	Switching.	Derrailment.	Repairing track.	Cleaning dipper.	Slide.	Rain.	Coaling shovel.	Waiting steam.
Bas Obispo.....	8.40	1.30	3.35	7.55	8		4.45				1.05	
Empire.....	4.05	3.20	5.25	9.05	9	1.55	2.45	0.45			2.05	0.35
Culebra.....	2.35	3.05	12.40	8.10	10.15	6.05	5.20	.50	3.10	0.05	.10	
Pedro Miguel.....	8.55	1.15	1.30	1.25	.25		5	.10				
Total.....	24.15	9.10	23.10	26.35	27.40	8	17.50	1.45	3.10	.05	3.20	.35

Daily report of transportation, Culebra Division, November 8, 1907.

BAS OBISPO.

No. of shovel.	Number of engines at work.	Number of trains handled.	Number and kind of cars.				Number of cubic yards.	Average cubic yards per engine.
			L. W.	L. F.	W. D.	F. D.		
52.....	1	1			16		192	192
111.....	1	6			48		576	576
116.....	1	3			30		360	360
201.....	1	5	44				792	792
217.....	1	12			59		708	708
221.....	1	4	25				450	450
228.....	2	10	26		74		1,356	678
227.....	1	6			44		528	528
228.....	3	6	68				1,224	408
229.....	1	5	35	5			730	730
Total (10).....	13	58	198	5	271		6,916	532

PEDRO MIGUEL.

224.....	1	4		44			880	880
110.....	1	1		9			180	180
123.....	1	2		8			160	160
202.....	1	1		12			240	240
211.....	3	4		37	24		1,028	342.6
209.....	2	4		37			740	370
Total (6).....	9	16		147	24		3,228	358.6

38 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Daily report of transportation, Culebra Division, November 8, 1907—Continued.
EMPIRE.

No. of shovel.	Number of engines at work.	Number of trains handled.	Number and kind of cars.				Number of cubic yards.	Average cubic yards per engine.
			L. W.	L. F.	W. D.	F. D.		
121 a.....	1	3				21	84	84
126 a.....	1	4			28		336	336
205.....	4	5		59			1,180	295
207.....	2	4		40			800	400
210.....	2	4		49			980	490
212.....	3	5		51			1,020	340
215.....	4	7	37	40			1,466	366.5
220.....	2	7		40			800	400
225.....	4	9		82			1,640	410
231.....	2	7	2	10	28		572	286
232.....	2	5		30			600	300
Total (11).....	27	60	39	401	56	21	9,478	351.1

CULEBRA.

50.....	1	5		15			300	300
108.....	1	1		11			220	220
109.....	2	9		32			640	320
122.....	4	7		16	77		1,244	311
124.....	2	4		37			740	370
127.....	2	2		25			500	250
128.....	1	5		10			200	200
206.....	1	4		18			360	360
208.....	2	7			40		480	240
213.....	3	3		34			680	226.6
214.....	2	3		31			620	310
218.....	1	3		22			440	440
219.....	5	6		83			1,660	332
222.....	6	12		32	129		2,188	364.6
230.....	4	9			105		1,260	315
Total (15).....	37	80		366	351		11,532	311.6

a Obispo Diversion.

MISCELLANEOUS.

	Number of engines at work.	Remarks.
Switching.....	10	2 Las Cascadas; 1 Paraise; 1 Empire; 1 Bas Obispo; 2 Pedro Miguel; 1 Culebra; 1 Gorgona; 1 Tabernilla.
Spreaders.....	7	2 Pedro Miguel and Corozal; 1 Juan Grande and Mamei; 1 Rio Grande; 2 Tabernilla; 1 La Boca.
Unloaders.....	11	4 Pedro Miguel and Corozal; 1 Juan Grande and Mamei; 4 Tabernilla; 2 La Boca.
Coaling shovels.....	3	2 Paraise, Pedro Miguel, and Corozal; 1 Cableway and Culebra.
Labor trains.....	2	1 Paraise, Pedro Miguel, and Corozal; 1 Culebra and Empire.
Track shifters.....	4	1 La Boca; 1 Tabernilla; 1 Juan Grande and Mamei; 1 Pedro Miguel.
Work trains.....	10	1 Ballast; 1 Bas Obispo crusher; 1 Pedro Miguel crane; 1 Empire crane; 1 steam shovel supply; 1 track, Empire; 1 Rio Grande crusher; 1 local supply; 1 L. and Q. Culebra and Empire; 1 track, Pedro Miguel.

SUMMARY.

	Number of engines at work.	Number of trains handled.	Number and kind of cars.				Number of cubic yards.	Average cubic yards per engine.
			L. W.	L. F.	W. D.	F. D.		
Steam/shovel engines.....86	133	214	237	919	702	21	31,154	362.2
Miscellaneous.....47					1,879			

Daily report of dumps, Culcra Division, November 8, 1907.

[L. W., large western dump cars; L. F., Lidgerwood flat cars; W. D., western dump cars; F. D., French dump cars. Under "Remarks" is shown all work, other than actual dumping, performed by dump gangs.]

Name and number of dump.	Men.	Hours worked.	Hours dumping.	Delays to dumps.	Trains dumped.
Tabernilla.....	709	6,290			27
Mamel.....	33	295	70	Delayed, 5' dirt	3
Juan Grande (2-3).....	82	732	90		5
Gorgona (2).....	73	639	60	Sinking	2
Chagres.....	69	615	123		18
Bas Obispo (2).....	49	441	35		4
Buena Vista.....	37	345	30		7
Las Cascadas (2).....	64	633	42		15
White House.....	15	131	28		1
Culebra (1-2).....	96	844	25		18
Rio Grande (4-5).....	65	568	10		4
Pedro Miguel (4-5).....	58	311		Delayed, 7' dirt	3
Miraflores (1 T).....	33	228		Delayed, 6' dirt	3
Soes dam (1 N).....	53	477			4
Soes dam (2 N).....	47	427			5
Soes dam (1 S).....	55	481			1
Soes dam yard.....	67	600			1
La Boca lock.....	18	157			5
La Boca beach.....	51	461		Delayed, 3' dirt	1
La Boca (M).....	14	136		Relocation	
La Boca (S).....	92	788		do	
La Boca.....	3	63	63	Lidgerwood	4
Total.....	1,766	15,662	645		121
Obispo dyke.....	17	131		From steam shovels 121 and 126	2
Obispo diversion.....	18	156			5

Name and number of dump.	Number and kind of cars.				Number of cubic yards.	Remarks.
	L. W.	L. F.	W. D.	F. D.		
Tabernilla.....		432			8,640	1,482 hours surface, 551 level, 3,627 raise, 236 repairing switch, 41 ditching.
Mamel.....	44				562	100 hours level, 116 raise.
Juan Grande (2-3).....	71				1,278	442 hours surface, 100 level, 100 raise.
Gorgona (2).....	29				522	238 hours surface, 184 grade, 157 level.
Chagres.....			103		1,236	58 hours surface, 251 level, 183 raise.
Bas Obispo (2).....			40		480	119 hours grade, 88 level, 199 raise.
Buena Vista.....			24		288	198 hours level, 117 raise.
Las Cascadas (2).....	98				1,764	430 hours level, 171 raise.
White House.....			15		180	103 hours level.
Culebra (1-2).....			248		2,976	153 hours surface, 159 level, 447 raise.
Rio Grande (4-5).....			25		300	350 hours surface, 10 level, 198 raise.
Pedro Miguel (4-5).....		15	39		778	311 hours raise.
Miraflores (1 T).....		37			740	228 hours surface.
Soes dam (1 N).....			65		680	477 hours raise.
Soes dam (2 N).....		76			1,520	427 hours raise.
Soes dam (1 S).....		21			420	481 hours raise.
Soes dam yard.....		20			400	600 hours raise.
La Boca lock.....		75			1,500	157 hours raise.
La Boca beach.....		16			320	461 hours raise.
La Boca (M).....						136 hours level.
La Boca (S).....		48	24		1,248	106 surface, 76 grade, 20 level, 157 lay 480 feet, 249 raise.
Total.....	242	740	583		26,152	
To Panama Railroad for Paraiso spur.			20		240	
Obispo dyke.....			14		168	131 hours grade.
Obispo diversion.....			7	28	196	166 hours grade.

Colonel GOETHALS. The average is 50 to 60 per cent of the time of steam shovels per day. They do sometimes run up to 75 or 80 per cent. There is a derailment in the Cut, for instance, and the train can not get to a shovel. It is cut out and transferred to another shovel, and the time of that shovel is increased. And so it goes all the way through. I have known a shovel to work only one hour in a working day.

Mr. MADDEN. This average is for all the shovels, Colonel?

Colonel GOETHALS. Yes.

Mr. BURLESON. All the shovels in the Culebra Cut.

The CHAIRMAN. Is that difference in the time that the shovels are at work due to some accident?

Colonel GOETHALS. Not wholly.

Mr. MADDEN. That is partly due to the lack of transportation facilities.

The CHAIRMAN. Yes; but it is also due to accidents happening to trains, such as derailments?

Colonel GOETHALS. Yes.

THE CUCURACHA SLIDE.

The CHAIRMAN. You recently had a very extensive slide in the Culebra Cut—the Cucuracha Slide?

Colonel GOETHALS. Yes.

The CHAIRMAN. To what extent did that delay the work?

Colonel GOETHALS. It cut down our yardage from 7,000 to 10,000 yards a day for the first three days. Then we put three steam shovels in and kept them busy. We saw to it that they had a train service that would give us a maximum percentage of working time.

Mr. TAYLOR. Colonel, explain the slide.

Colonel GOETHALS. It is the old landslide that the French had trouble with, and our people excavated it during the dry season, leaving a bench on which the material would rest and hold back the upper part. During the last dry season it was thought that a bench had been left wide enough to take care of what material would slip down, but we missed it, because this year we have had heavier rains than for a year or two.

Mr. TAYLOR. Please explain what it is.

Colonel GOETHALS. The material rests upon a formation of rock that is just like glass and which inclines toward the Cut. The water saturates the mass of earth. There is no drainage for the water, and the semifluid mass slips along the slick mass of rock. On the 1st of July we estimated 500,000 cubic yards would have to be removed to take out all material that would slide.

Mr. TAYLOR. There will not be any more in that slide?

Colonel GOETHALS. Not unless the hills beyond it give way. We will have to drain it off and not permit that to come in.

APPROPRIATIONS FOR CANAL CONSTRUCTION.

The CHAIRMAN. Now, Colonel, please give us, if you have it, a statement of the total appropriations thus far made for canal construction.

Colonel GOETHALS (reading):

FINANCES OF THE CANAL.

APPROPRIATIONS AND EXPENDITURES DOWN TO JUNE 30, 1907.

The subjoined tabulated statement of appropriations and expenditures shows that \$79,608,568.58 have been appropriated for the construction of the Canal between the Atlantic and Pacific oceans, and that of this amount, at the close of the fiscal year, a total of \$48,285,110.37 was expended. The project adopted by Congress was estimated by the Board of Consulting Engineers to cost \$139,705,200, exclusive of sanitation and expenses of the Zone Government; the estimates submitted did not contemplate or provide for waterworks, sewers, and paving in Panama and Colon, made necessary to secure improved health conditions, nor is any provision made for the reequipment of the Panama Railroad. Under the circumstances the subjoined table is prepared with a view of showing the amount expended for the construction of the Canal on estimates under which the Commission is operating:

APPROPRIATIONS.

June 28, 1902: Canal connecting Atlantic and Pacific oceans.....	\$10,000,000.00
December 21, 1905: Canal connecting Atlantic and Pacific oceans.....	11,100,000.00
February 27, 1906:	
Material purchases in United States.....	1,000,000.00
Miscellaneous expenses on Isthmus.....	400,000.00
Panama Railroad and second track.....	200,000.00
Isthmus pay rolls.....	2,000,000.00
Salaries and incidental expenses in United States.....	75,000.00
Equipment purchases.....	1,565,786.00
Reequipment Panama Railroad.....	650,000.00
Total available appropriations to June 30, 1906.....	\$26,900,786.00
June 30, 1906:	
Expenses in United States.....	368,242.69
Salaries.....	\$251,063.33
Incidental expenses.....	117,179.36
Construction, engineering, and administration.....	21,018,537.24
Pay—	
Officers and employees.....	2,600,512.00
Skilled and unskilled labor.....	8,650,661.00
Material purchases.....	9,032,814.24
Incidental expenses on Isthmus.....	734,550.00
Civil administration.....	968,200.00
Pay—	
Officers and employees.....	600,000.00
Skilled and unskilled labor.....	50,000.00
Material and incidental expenses.....	318,200.00
Sanitation.....	2,101,435.15
Pay—	
Officers and employees.....	600,000.00
Skilled and unskilled labor.....	679,068.00
Material and incidental expenses.....	822,367.15
Reequipment of Panama Railroad.....	1,000,000.00
Total appropriation, year 1907.....	25,456,415.08

42 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

March 4, 1907:

Expenses in United States-----	\$253, 000. 00
Salaries -----	184, 000. 00
Incidental expenses -----	69, 000. 00
Construction, engineering, and administration -----	20, 368, 000. 00
Pay—	
Officers and em- ployees -----	2, 772, 000. 00
Skilled and un- skilled labor-----	7, 990, 000. 00
Material purchases-----	9, 046, 000. 00
Incidental expenses on Isthmus -----	558, 000. 00
Civil administration-----	825, 000. 00
Pay—	
Officers and em- ployees -----	486, 000. 00
Skilled and un- skilled labor-----	50, 000. 00
Material and incidental expenses -----	289, 000. 00
Sanitation -----	2, 034, 000. 00
Pay—	
Officers and em- ployees -----	766, 000. 00
Skilled and un- skilled labor -----	468, 000. 00
Material and incidental expenses -----	800, 000. 00
Reequipment Panama Railroad-----	1, 385, 000. 00
Redemption Panama Railroad bonds-----	2, 298, 367. 50
Total appropriation, year 1908-----	\$27, 161, 367. 50
Total appropriations -----	79, 608, 568. 58

EXPENDITURES FOR CANAL CONSTRUCTION.

The CHAIRMAN. How much of that has been expended for Canal construction proper, and how much for other purposes? Please state the purposes for which the balance has been expended.

Colonel GOETHALS [Reading]:

EXPENDITURES.

Construction of Canal-----	\$28, 782, 682. 60
Buildings -----	5, 862, 384. 90
Panama waterworks, sewers and paving-----	1, 217, 445. 52
Colon waterworks, sewers and paving-----	763, 302. 30
Panama Railroad advances-----	1, 826, 683. 50
Total construction and engineering-----	\$39, 452, 498. 82
Government of the Canal Zone-----	1, 431, 151. 71
Buildings -----	388, 101. 40
Zone highways -----	499, 023. 70
Total civil government -----	2, 318, 276. 81
Sanitation and hospitals-----	4, 799, 642. 04
Buildings -----	750, 565. 96
Total sanitation -----	5, 550, 208. 00
Loans to Panama Railroad-----	1, 631, 257. 34
Purchase of Panama Railroad stock-----	157, 118. 24
Purchase of Santa Rosa and Tivoli Hill prop- erties -----	56, 882. 96

Balance due by laborers for their transportation -----	\$210, 694. 45	
Bills rendered against Panama Railroad and others, but uncollected -----	465, 988. 52	
Collections from individuals and companies remitted to United States Treasurer as miscellaneous receipts -----	1, 949, 699. 91	
Labor furnished and material sold to Panama Railroad, the Republic of Panama, Commission employees, and other allied interests. --	1, 950, 952. 28	
Cash and uncollected bills at various hospitals. --	2, 312. 71	
Total miscellaneous -----	6, 422, 906. 41	
Less amount due individuals and companies for claims allowed but not paid on this date. --- \$505, 375. 18		
Less amounts unpaid on pay rolls 1, 431, 746. 21		
June rolls --- \$1, 290, 419. 14		
Prior months. 141, 327. 07		
Less total amount of collections made and bills rendered and included in expenditures, which have been or will be deposited in the U. S. Treasury as miscellaneous receipts -----	2, 873, 146. 63	
Less value of French material charged to the work or sold to individuals and companies which has been credited to purchase price of Canal. -----	648, 511. 65	
	5, 438, 779. 67	
Net miscellaneous -----		\$964, 126. 74
Total expenditures -----		48, 285, 110. 37
Balance available July 1, 1907 -----		31, 323, 458. 21
Total -----		79, 608, 568. 58

I had that table prepared because it is stated frequently that the Consulting Board of Engineers estimated the cost of the Canal at 140 million dollars, and that Congress has already appropriated 79 million dollars and the Canal is not completed proportionately; and I separate that in order to show the items that were not included in the estimates of the Consulting Board when they figured up their amount of 140 million dollars.

ITEMS OF EXPENDITURE NOT INCLUDED IN ESTIMATES OF CONSULTING BOARD.

The CHAIRMAN. Tell us what the items are that you have included in your statement of expenditures which were not included in the estimates of the Consulting Board.

Colonel GOETHALS. Buildings are probably included in their estimates as part of administration.

The CHAIRMAN. What kind of buildings?

Colonel GOETHALS. The buildings we are furnishing to our employees.

The CHAIRMAN. Including the administration buildings?

Colonel GOETHALS. Yes, sir; and the buildings we are furnishing to the employees. I assume that was in the administrative expense,

which was 20 per cent of the total, but I am not certain. There was no estimate in the Consulting Board's estimate for waterworks, sewers, or paving in the terminal cities.

The CHAIRMAN. What is the aggregate of money expended for that purpose?

Colonel GOETHALS. Very nearly \$2,000,000. There is nothing included in the Consulting Board's estimate for advances to the Panama Railroad and loans to the Panama Railroad and the equipment of the Panama Railroad and for the purchase of stock.

The CHAIRMAN. How much does that amount to?

Colonel GOETHALS. That is about \$3,500,000.

The CHAIRMAN. Is sanitation included?

Colonel GOETHALS. It is not included. The estimates of the Consulting Board were exclusive of sanitation and expenses of Zone government.

The CHAIRMAN. And the amount expended for sanitation and expenses of the Zone government is what?

Colonel GOETHALS. Something in the vicinity of \$8,000,000.

Mr. MADDEN. Did I understand you to say that the advances and loans to the Panama Railroad Company were not included?

Colonel GOETHALS. They were not in the report of the Consulting Engineers.

Mr. MADDEN. What were those amounts advanced to the railroad for?

Colonel GOETHALS. Mr. Rogers could give you information on that point. I do not know much about the advances. For instance, the last appropriation bill provided for \$1,750,000 for equipment for the Panama Railroad, cars, etc.

Mr. MADDEN. Is not that the result of the necessity on the part of the railroad company to remove the dirt that you excavate?

Colonel GOETHALS. That is for passenger service and freight service, and it is brought about by the construction of the Canal.

Mr. MADDEN. Then it is not, as a matter of fact, part of the construction of the Canal, and should it not be included?

Colonel GOETHALS. It is, but it is not to be compared with the 140 million dollars which everybody was saying would be the total cost of the Canal, when that 140 millions contemplated no such items.

The CHAIRMAN. He does not claim it was not a necessary incidental expenditure, but—

Mr. MADDEN. Why should it not be a part of the 140 million dollars?

Colonel GOETHALS. It should be a part of the cost of the construction of the Canal. I am perfectly willing to admit that.

Mr. MADDEN. Let us put it this way: In estimating the cost of the Canal did the Board of Engineers estimate the cost of the Canal as including the cost of making the excavation and removing the dirt?

Colonel GOETHALS. Yes.

Mr. MADDEN. If they estimated the cost of removing the dirt as well as making the excavation, they must have included the cost of transportation, and the payment to the Panama Railroad as a result?

Colonel GOETHALS. Yes. We have done all the double tracking, and have included that in the cost of the construction of the Canal; but we have not included, and ought not to include, nor did the Con-

sulting Board include, passenger trains. We do not care for passenger trains in the construction of the Canal.

Mr. MADDEN. Do you want to be understood as saying that because additional passenger train service was necessary, it was necessary to advance to the Panama Railroad \$3,000,000?

Colonel GOETHALS. No; Congress thought it was not necessary to appropriate \$1,750,000 for that purpose. We have not advanced that money.

Mr. MADDEN. Was not that appropriated?

Colonel GOETHALS. That was appropriated by the last Congress.

Mr. MADDEN. That was appropriated. Was it not because of the necessity of moving the railroad—part of the cost of moving the site of the railway?

Colonel GOETHALS. No; that has gone in for equipment and passenger cars and the lengthening of the *Alliance*, and so forth.

Mr. MADDEN. Let us understand this. Part of it went into the purchase of ships, did it?

Colonel GOETHALS. No; part of it is going to be expended in the extension and lengthening out of one of the ships, the *Alliance*.

Mr. MADDEN. Would not that be part of the construction of the Canal, properly speaking?

Colonel GOETHALS. I am trying to show that the estimates of the Consulting Board contemplated certain items, and that the aggregate of those items did not include certain things which the construction of the Canal has made necessary.

Mr. BURLESON. To go back behind the estimate of the Consulting Board, though, Colonel, the original act provided for the appropriation of 185 million dollars, 40 millions to be paid to the French company, 10 millions to be paid to Colombia, and 135 million dollars to be used in the construction of the Canal?

Colonel GOETHALS. Yes; that was on the original board's estimate.

Mr. BURLESON. That included everything?

Colonel GOETHALS. Yes, but that did not include these items here that I have specified.

Mr. BURLESON. The original board's estimate?

Colonel GOETHALS. I do not know about the original board's estimate. We are working under this.

The CHAIRMAN. The estimates of the Consulting Board were made somewhat in detail?

Colonel GOETHALS. Yes, sir; they are somewhat in detail, and they are found in Appendix T of their report.

The CHAIRMAN. It might be well here to print as part of your statement that estimate, so that we can see what the items are that they did estimate for, together with the items that you are now making expenditures for, and in that way we can easily determine.

Following is Appendix T of the report referred to:

APPENDIX T.

ESTIMATES OF COST OF LOCK CANAL.

[Supplemental to the minority report.]

Breakwaters in Limon Bay (length 4½ miles), from mile 0 to mile 3.30, using the estimate adopted by the Board.....	\$5,000,000
Extension of breakwater, 1½ miles in length, from mile 3.30 to head of Limon Bay (mile 4.55), 400,000 cubic yards, at 75 cents.....	300,000

Excavation of channel in Limon Bay, 40 feet in depth below low water and 500 feet wide, from mile 0 to mile 4.55: Earth (dredging), 8,300,000 cubic yards, at 15 cents-----	\$1,245,000
Excavation 40 feet in depth below low water and 500 feet wide from head of Limon Bay (mile 4.55) to northerly end of Gatun locks (mile 7.15):	
Earth (dredging), 10,000,000 cubic yards, at 25 cents-----	\$2,500,000
Indurated clay (dredging), 2,030,000 cubic yards, at 70 cents-----	1,421,000
	<hr/> 3,921,000
Excavation for Gatun locks, mile 7.15 to mile 7.74:	
Earth, 920,000 cubic yards, at 40 cents-----	368,000
Indurated clay, 2,740,000 cubic yards, at 70 cents--	1,918,000
	<hr/> 2,286,000
Gatun locks, exclusive of excavation and approach walls-----	13,075,000
Approach walls of Gatun locks-----	500,000
Back filling end embankment, Gatun locks, 660,000 cubic yards of borrowed earth, at 50 cents-----	330,000
Gatun dam:	
Earth embankment--	
Below elevation 50, 12,170,000 cubic yards of dredged material pumped into dam, at 20 cents-----	\$2,434,000
Between elevation 50 and elevation 80, 5,770,000 cubic yards of dredged material pumped into dam, at 30 cents-----	1,731,000
Above elevation 80, 3,260,000 cubic yards of material from excavations placed in dam, at 25 cents-----	\$15,000
Excavation for diversion channel and regulating works--	
Earth, 1,100,000 cubic yards, at 40 cents-----	440,000
Indurated clay, 480,000 cubic yards, at 70 cents-----	336,000
Concrete in regulating works and for protection of diversion channel, 189,000 cubic yards, at \$8-----	1,512,000
Regulating rates and machinery (complete)-----	320,000
Allowance for preparatory work at site of Gatun dam and miscellaneous expenses-----	200,000
	<hr/> 7,788,000
Excavation from Gatun locks (mile 7.74) to Obispo (mile 31.25), making channel 45 feet deep and not less than 500 feet wide for 23.51 miles, of which 15.92 miles is not less than 1,000 feet wide:	
Earth excavation in the dry, 600,000 cubic yards, at 40 cents-----	\$240,000
Indurated clay excavation at Gatun, 130,000 cubic yards, at 70 cents-----	91,000
Earth excavation (dredging), 12,960,000 cubic yards, at 25 cents-----	3,240,000
Rock excavation in the dry, 1,160,000 cubic yards, at \$1.15-----	1,334,000
	<hr/> 4,905,000
Cutting trees in Gatun Lake-----	100,000
Excavation from mile 31.25 to mile 32.80, channel 45 feet deep and 300 feet wide, with slopes of 10 vertical to 1 horizontal: 7,280,000 cubic yards, at 80 cents----	5,824,000
Excavation through higher portion of Culebra cut from mile 32.80 to mile 37.50, 45 feet deep and 200 feet wide at bottom, quantities computed from typical cross section adopted by the Board, but enlarged by widening berm at elevation 245: 39,650,000 cubic yards, at 80 cents-----	31,720,000

Excavation from mile 37.50 to northerly end of Pedro Miguel locks (mile 39.37), channel 45 feet deep and 300 feet wide, with slopes of 4 vertical to 1 horizontal, in rock: 6,835,000 cubic yards, at 80 cents....		\$5,468,000	
Total for Culebra cut, 53,765,000 cubic yards, at 80 cents.....			\$43,012,000
Allowance for diversion channels for streams between Obispo and Pedro Miguel.....			850,000
Excavation for Pedro Miguel locks, mile 39.37 to mile 39.60:			
Earth, 650,000 cubic yards, at 40 cents.....	\$260,000		
Rock, 520,000 cubic yards, at \$1.15.....	598,000		
		858,000	
Pedro Miguel locks, exclusive of excavation and approach walls..			5,935,000
Approach walls to Pedro Miguel locks.....			300,000
Back filling and embankment at Pedro Miguel locks, 390,000 cubic yards of borrowed earth, at 50 cents.....			195,000
Pedro Miguel dam:			
Earth embankment, 1,100,000 cubic yards, at 25 cents.....	\$275,000		
Add for preparatory work and miscellaneous expenses.....	50,000		
		325,000	
Excavation from mile 39.60 to mile 41.47, making channel 45 feet deep and 500 feet wide: Earth (dredging), 1,460 cubic yards, at 25 cents.....			365,000
Excavation from mile 41.47 to northerly end of Sosa locks (mile 45.08), making channel 45 feet deep and not less than 1,000 feet wide: Earth (dredging), 220,000 cubic yards, at 25 cents.....			55,000
Excavation for Sosa locks (mile 45.08 to mile 45.49):			
Earth, 480,000 cubic yards, at 40 cents.....	\$192,000		
Rock, 950,000 cubic yards, at \$1.50.....	1,425,000		
		1,617,000	
Sosa locks, exclusive of excavation and approach walls.....			11,000,000
Approach walls for Sosa locks.....			450,000
Back filling and embankment at Sosa locks, in part rock from excavations and in part borrowed earth: 950,000 cubic yards, at 50 cents.....			475,000
Excavation from Sosa locks (mile 45.49) to deep water (mile 49.72), 300 feet wide and 45 feet below mean sea level:			
Earth, 4,760,000 cubic yards, at 15 cents.....	\$714,000		
Rock, 200,000 cubic yards, at \$1.50.....	300,000		
Rock, 370,000 cubic yards, at \$2.50.....	925,000		
		1,939,000	
Ancon-Sosa and Ancon-Corozal dams: 5,980,000 cubic yards, at 25 cents.....			1,495,000
La Boca dam:			
Embankment, 6,300,000 cubic yards, at 25 cents....	\$1,575,000		
Shutting off tidal flow at mouth of Rio Grande....	100,000		
		1,675,000	
Diversion channel and regulating works at dam between Ancon and Sosa Hills.....			275,000
Add for preparation of sites and for extras at the dams at the Pacific end of the Canal.....			150,000
Panama Railroad diversion from Gatun to Bohio (say).....		\$2,000,000	
Panama Railroad diversion from Bohio to Pedro Miguel.....		1,300,000	
Panama Railroad diversion from Pedro Miguel to Panama.....		400,000	
			3,700,000

Movable dams at the Gatun and Pedro Miguel locks for stopping the flow from the summit level in the event of the destruction of the lock gates-----	\$2, 000, 000
Land damages, Gatun and Sosa lakes-----	300, 000
	116, 421, 000
Add 20 per cent for administration, engineering, and contingencies, but not including interest during construction, sanitation, or expenses of Zone government-----	23, 284, 200
Total-----	139, 705, 200

Colonel GOETHALS. The total amount appropriated for the Canal is going to be the cost of the construction of the Canal; but when gentlemen get up in Congress and say that 140 millions was to be the cost of this Canal and that now we have appropriated 79 millions and have not got that proportionate amount of work done, I want it understood why that proportionate amount is not done, because the expenditures have been along lines additional to those originally contemplated.

Mr. BURLESON. Are those estimates not based on the original estimate?

Colonel GOETHALS. Yes. Congress has adopted this project.

The CHAIRMAN. What you mean, as I understand you, is that out of the appropriation that Congress has already made for this project you have advanced to the railroad company this amount of money over and above the amount absolutely necessary in connection with the construction of the Canal, directly?

Colonel GOETHALS. Yes. There is a certain question of bonds that we have advanced money for.

Mr. R. R. ROGERS, General Counsel of the Isthmian Canal Commission. Yes; that takes the place of a loan. In order to clear up one point I will state that the appropriation bill of 1907 was solely to reequip the Panama Railroad, and the appropriation estimate as first submitted for 1908 was to reequip the Panama Railroad Company. A certain portion of that was used for construction purposes, and the law was amended to include reequipment with the construction.

The CHAIRMAN. That was to enable the Isthmian Canal Commission to begin the reconstruction of the road, which we are obliged to do in consequence of the building of the Canal?

Colonel GOETHALS. No; none of that money is usable for that purpose. That construction work that Mr. Rogers speaks of is putting in additional sidings needed to handle the freight. It is putting the *Alliance* in proper shape for transportation. But none of that appropriation is usable for the relocation. We brought that up to the Comptroller.

Mr. ROGERS. I think the Comptroller so decided.

Mr. MADDEN. These additional sidings were necessitated because of the vast amount of movement of dirt taken out of the Canal?

Colonel GOETHALS. Not necessarily dirt, but freight.

Mr. KEIFER. Not exclusively dirt.

The CHAIRMAN. Now we will take up the next subject.

Colonel GOETHALS. I will take up my office, on page 35 of the bill. The estimates on page 4 I can not discuss with you because they are grouped as a whole. On page 35 we have them divided as we submitted them, and each head of department can come in and explain them.

EMPLOYEES IN DEPARTMENT OF CONSTRUCTION AND ENGINEERING.

The CHAIRMAN. Before we do that, I want a general statement from you, Colonel, in regard to the total number of employees in the Department of Construction and Engineering. Can you give us that?

Colonel GOETHALS. I can not give it now, but I will give it to the stenographer and have him insert it in the record.

The CHAIRMAN. Very well.

Following is the statement referred to:

Isthmian Canal Commission—Force report.

EMPIRE, November 7, 1907.

Occupation.	Number of men.	Engineering.		Tabernilla District.		Bas Obispo District.		Empire District.		Culebra District.	
		Gold.	Silver.	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
Construction superintendents.	3			\$10.00		\$10.00				\$11.67	
Assistant superintendents construction.	5			8.33				\$8.33		8.33	
Supervisors.	8			6.67		13.34		5.83		8.33	
General foremen.	76			35.83		67.50		99.17		77.00	
Foremen (gold).	93			64.17		38.33		90.33		58.89	
Assistant foremen (gold).	3			5.00		2.50					
Foremen (silver).	173		\$7.83		\$90.83		\$65.00		\$152.33		\$155.17
Engineers, steam shovel.	54					93.31		121.59		123.41	
Cranesmen.	51					74.43		93.43		100.27	
Firemen, steam shovel (gold).	46					31.00		34.72		41.80	
Firemen, steam shovel (silver).	26								17.50		41.00
Drillers (gold).	59					34.00		65.19		70.98	
Powdermen (gold).	29					40.00		27.50		45.83	
Powderman (silver).	1								5.50		
Crusher engineer.	1					4.17					
Pile driver engineers.	14			25.00							
Blacksmith (gold).	1									3.33	
Track-throwing engineers.	2			4.17							
Acting resident engineer.	1	\$8.33									
Assistant engineer.	1	8.33									
Chainman (silver).	1		2.00								
Watch force.	59						21.50		42.67		47.33
Messengers.	10		2.00								
Pile driver foreman.	9			20.00							
Special engineer.	1									6.30	
Artisans.	2,123				19.20		509.97		846.72		874.76
Laborers.	4,470		61.28		2,681.80		2,478.26		3,726.14		2,886.32
Timekeepers (gold).	49			22.50		23.61		30.00		29.44	
Timekeepers (silver).	4								3.33		
On vacation.	97	22.78				31.72		28.15		30.17	
Other gold employees.	48	89.72									
Total.	8,382	129.16	73.11	201.67	2,791.83	464.01	3,074.73	604.24	4,794.19	615.75	4,004.58

Isthmian Canal Commission—Force report—Continued.

Occupation.	Number of men.	Pedro Miguel District.		Transportation.		Water service.		General expense.		La Boca District.		
		Gold.	Silver.	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.	
Division engineer.....	1							\$20.83				
Assistant division engineer.....	1							16.67				
Assistant superintendents construction.....	5	\$8.33								\$8.33		
Supervisors.....	8	5.83		\$7.33				6.67				
Assistant supervisors.....	3	17.50										
General foremen.....	76	70.83				\$15.50		10.00		15.00		
Foremen (gold).....	93	50.28		19.78		6.95				33.34		
Foremen (silver).....	173		\$155.33		\$5.00	\$17.56					\$30.00	
Engineers, steam shovel.....	54	50.26										
Cranesmen.....	51	49.95										
Firemen, steam shovel (gold).....	45	13.89										
Firemen, steam shovel (silver).....	26		39.50									
Drillers (gold).....	59	33.06										
Drillers (silver).....	2		9.00									
Powdermen (gold).....	29	17.02										
Pile-driver engineers.....	14	16.67								17.50		
Superintendents.....	2			13.89		8.33						
Assistant superintendent.....	1			8.33								
Trainmaster.....	1			8.33								
Yardmasters.....	16			118.90								
Conductors.....	135			843.42								
Trainmen.....	160			533.33								
Brakemen.....	199				507.66							
Locomotive engineers.....	141			981.34								
Lidgerwood engineers.....	13			54.58								
Firemen, locomotive.....	144				570.04							
Telegraph and telephone operators.....	11				25.00							
Wrecker engineers.....	3			15.50								
Track-throwing engineers.....	2									4.17		
Foremen conductors.....	5							33.02				
Pipe fitters and helpers.....	23					5.88	82.10					
Carpenter (gold).....	1					6.12						
Yard clerks (silver).....	3				16.99							
Watch force.....	59		35.00						\$4.67			
Messengers.....	10		2.34		15.17				5.00			
Pile-driver foremen.....	9	15.00								10.00		
Artisans.....	2,123		606.52		194.22		39.26				108.00	
Laborers.....	4,470		2,421.16		240.82		363.60		95.76		1,251.40	
Timekeepers (gold).....	49	23.34		21.67				20.83		11.66		
Timekeepers (silver).....	4			5.83				8.63				
On vacation.....	97	33.09		301.90		5.00		18.83		8.33		
Other gold employees.....	48			26.33				77.49				
Total.....		8,382	405.05	3,268.85	2,954.63	1,580.71	47.78	502.62	204.34	114.06	108.33	1,384.40

SUMMARY.

	Men.	Gold.	Silver.
Engineering.....	59	\$129.16	\$73.11
Construction.....	8,323	5,605.80	21,515.97
Total.....	5,382	5,734.96	21,589.08

Colonel GOETHALS. I would like to say, with respect to the Department of Construction and Engineering, that the Culebra Division had been organized for two years, so that the estimates for that part of the work are pretty close and are based on present needs. The estimates for the Chagres Division, for the Gatun locks and dams, for the La Boca locks and dams, and for the Pedro Miguel locks are to a certain extent uncertain, and somewhat in the nature of guess work. The estimates submitted by the heads of departments aggregated something like 45 million dollars for the next fiscal year, and I began the slashing process, and the result was that they were down to about 30 million dollars.

We took, for instance, the Gatun locks and estimated that there was so much excavation to be done, and there was so much concrete that we hoped to lay by the 1st of July, 1909, and with that as a basis we arrived at a lump sum and prorated it according to the employees that would probably be required. Whether there will be that number of superintendents or not is a question we can not determine.

We have begun on a system or reorganization. There was no system governing the employment of clerks and the fixing of their pay. They raised the question of longevity. They want longevity because the machinists have it. So I started in with my own office, and I have fixed the number of positions and the salaries to be paid each position. This fixes the number of clerks, and it is understood that increased pay will be given when vacancies occur, or up to the sums fixed as the limits of pay for the positions. I can increase pay at any time I see fit, but in no case can the pay go beyond the limit fixed and in that direction a reduction has been made, not with a view to make any considerable cut in the estimates, but as an indication that we are trying to work on a system, which we hope to apply to the entire work. But it will take time.

The CHAIRMAN. I see that you estimate \$3,517,911 for salaries in the Department of Construction and Engineering.

OFFICE OF THE CHAIRMAN AND CHIEF ENGINEER.

Colonel GOETHALS. Let us take the office of the Chairman and Chief Engineer. I can discuss that, and then Major Gaillard and the other heads of departments can come in.

The CHAIRMAN. You have estimated on pages 10 and 11 for skilled and unskilled labor \$11,429,847 for your department, and you have estimated for materials on page 14, \$11,752,708, making a total for the Engineer Department of \$26,700,466. These figures are shown by your estimate as they are made up in the proposed Sundry Civil appropriation bill of this Congress.

Colonel GOETHALS. Yes.

CONDITION OF THE PERSONNEL.

The CHAIRMAN. Now, Colonel, you were speaking of your organization and what you have been doing. Will you state to the committee what the condition of the personnel is in your department, the Engineering Department, as to their being satisfied with their present compensation, and what the Government under your direction is doing for them in addition to the salaries they are receiving and for which you have estimated for the coming fiscal year?

Colonel GOETHALS. On the whole I think they are satisfied. There is the constant desire for promotion and increased pay which will always be met with anywhere, and also for more privileges. They are furnishing employees who are married with married quarters, under the contract of employment, and with fuel, lights, and water; and each employee is given for the present one pass, a round trip pass, on the Panama Railroad per month, and the families of employees are given half rates, $2\frac{1}{2}$ cents a mile, when traveling on the Panama Railroad.

FAMILY QUARTERS.

The CHAIRMAN. Now will you explain what you mean by family quarters?

Colonel GOETHALS. We have buildings accommodating four families. There is a sitting room, practically three living rooms, and a kitchen, in addition to a bath. That is for employees.

The CHAIRMAN. How many bedrooms?

Colonel GOETHALS. Two. They can utilize them all for bedrooms. Some of them do that, and live on the porches. The buildings are screened, and the occupants use Japanese screens, so as to inclose them still more, and they live and eat on the porches.

The CHAIRMAN. In this climate they can utilize the porch as one of the rooms of the house when screened in?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. So that the rooms you speak of are not actually all the room they have?

Colonel GOETHALS. No; they have the front and back porches in addition.

The CHAIRMAN. What is the size of these porches?

Colonel GOETHALS. I will get a series of blueprints and give you the dimensions of the house and the number of rooms of all the types.

Mr. KEFFER. A general statement, I think, would answer better. Take one type, for example.

Colonel GOETHALS. Then we have a type of two-family quarters, one over the other, in which there is an additional room, but we have stopped building those. Then we pass from the four and two family houses to the single house with a front and back porch.

The CHAIRMAN. What do these small family houses cost?

Colonel GOETHALS. The small family house costs about \$2,000, the four-family sets about \$6,000, I believe. Mr. Rousseau can give you that information in detail. He has the building of all the houses. The discussion of his estimates will bring out that point.

CONTRACT EMPLOYMENT.

Mr. GILLET. You spoke of the contract of employment. Do you mean that is the contract made in the United States before they come here?

Colonel GOETHALS. Yes.

Mr. GILLET. How long is that a contract which can not be changed at any time?

Colonel GOETHALS. We could not change it unless the man cared to change it with us. So long as his services are satisfactory we could not change it.

Mr. GILLET. Can that form of contract be put into the record?

Colonel GOETHALS. Yes.

Following is the form of contract referred to:

FORM OF APPOINTMENT AND GENERAL CONDITIONS OF EMPLOYMENT.

All persons employed in the United States for duty on the Isthmus will be given an appointment or contract which reads as follows:

You are hereby provisionally employed as ——— under the Isthmian Canal Commission for duty on the Isthmus of Panama, your compensation to be at the rate of ——— United States currency value, for the performance of such duties as may be determined by the head of the department to which you are assigned upon arrival on the Isthmus, to serve at the pleasure of that official, subject only to the allowances and conditions shown on the reverse of this sheet.

This paper should be presented by you upon arrival in the harbor at Colon to the authorized representative of the Isthmian Canal Commission, who will come aboard ship at that port and advise you as to your assignment to duty.

On the reverse side of this appointment will be found printed the following general conditions of employment, in which salary is fixed in United States currency, and which are subject to change by the Commission from time to time as the exigencies of the service may require:

GENERAL CONDITIONS OF EMPLOYMENT.

Service must be satisfactory to the head of the department in which employed, and employees are subject to the regulations of the Commission.

The compensation and conditions of employment will be specified in provisional appointments. Such compensation will begin with entry into service on the Isthmus, except for those employed in the United States, in which latter cases compensation will begin upon the date of embarkation at port of departure from the United States, but no payment on account of salary accrued from the date of departure until the date of actual duty on the Isthmus shall be made until after thirty days' service on the Isthmus. This latter provision, however, applies only to resignations, and not to discharges or other separations from the service which are beyond the employee's control. An employee appointed with rate of pay per hour will be paid, as above set forth, on a basis of an eight-hour day up to the time of his actually entering upon the performance of his duties on the Isthmus.

An employee whose compensation begins upon the date of his departure from the United States will be granted free transportation from port of departure, including meals on the steamer, but will be required to pay all the expenses of the journey to such port, which will not be refunded.

When the exigencies of the steamship service permit, members of the immediate family of an employee will be granted, upon request, the Government rate on the steamers of the Panama Railroad Company operating between the United States and Cristobal. No charge will be made for children under six years of age, and half rates will be charged for children between the ages of six and twelve years. An employee will not be permitted to take his family to the Isthmus until he has first gone there and secured quarters for them.

A former employee from the United States, who served less than one year, reengaged for duty on the Isthmus, will receive pay only from the date of his reentry into the service on the Isthmus, and he will be charged the Government rate on the steamers of the Panama Railroad and Steamship Company operating between the United States and Cristobal.

The assignment to duty is vested in the head of the department in which employed, and an employee is expected to perform such duties as may be properly assigned to him.

Where practicable and in the best interests of the service, an employee will be provided with such quarters on the Isthmus as may be available from time to time. Family quarters will be assigned when available, assignments to be made in accordance with the date of application. Experience shows that about ten months elapse between application and assignment.

The Commission reserves the right to pay in any money, the value or parity of which is guaranteed by the United States. Being on the gold roll will not in future confer any special privileges.

An employee whose salary is fixed on an annual or monthly basis will receive no pay for overtime work. Such employee may be granted, in the discretion of the head of the department in which employed, with the approval of the Chairman, not to exceed six weeks' leave of absence with pay for each twelve months' service.

This grant of leave of absence is not a vested right, but is made for the benefit of the Government in preserving the health of those employees not accustomed to work in a tropical country, and will be confined to such employees. It must be taken in a country affording the necessary change of climate, and compensation for the period of such leave will not be paid until the first pay period after the employee returns to the Isthmus and reports for duty.

If such leave be granted, an employee will be allowed the Government rate on the steamers of the Panama Railroad Company operating between the United States and Cristobal. This leave is not to be cumulative, unless an employee is prevented by the Government from taking such leave when due. Leave may be granted any time after ten months' service.

If an employee entitled to leave after ten months' service shall be declared by the Medical Examining Board of the Department of Health to be physically unfit for further service on account of injury or disease contracted in line of duty on the Isthmus, he shall be granted six weeks' leave of absence with pay, and paid in the United States for this period of leave without returning to the Isthmus.

Employees not reporting for duty within fifteen days after expiration of leave will forfeit right to pay for leave period.

An employee whose compensation while on duty carries with it subsistence or quarters will not be entitled to either, or commutation thereof, while on leave of absence.

To assist the Government in maintaining a skilled force on the Isthmus, all regular employees above the grade of laborer, unaccustomed to a tropical climate, may be granted fifteen days' sick leave with pay for each six months' service, on the certificate of an authorized physician in the service of the Department of Health of the Isthmian Canal Commission that the employee has been unable to work on account of illness contracted through no fault of his own, or because of injury. This leave may be cumulative to an amount not exceeding thirty days, and payment for same shall be made the first pay period after the employee's return to duty, but no payment shall be made for time lost in excess of the sick leave due at the time of such illness or injury.

The amount of compensation to be paid an employee to whom sick leave is granted, under the conditions herein mentioned, will be calculated at the rate at which such employee is carried on the rolls of the Commission at the time of said illness or injury, and in the case of an employee working on an hourly basis such calculation shall be based upon a day of eight hours.

An employee may be granted, in the discretion of the head of the department in which employed, with the approval of the Chairman, leave on account of injury incurred in the performance of duty, not exceeding thirty days in any current year, while such employee is incapacitated from duty by reason of such injury. The amount of compensation to be paid an employee to whom sick leave is granted on account of injury will be calculated as provided for in the case of sick leave. Leave on account of injury may be granted to an employee in addition to the sick leave above provided. Leave on account of injury shall not be cumulative, and payment for same will be made on the first pay roll following its authorization.

All employees, in case of illness or injury, will receive free medical care and attendance at the hospitals.

Employees from the United States will be given return transportation upon the termination, by or at the instance of the Commission, of satisfactory service, the character of such service to be determined by the head of the department in which employed.

The compensation of any employee above the grade of laborer, appointed with rate of pay per hour, after entering upon the performance of his duties, will be based upon an eight-hour day, with time and a half for overtime, including Sundays.

All employees whose compensation is fixed on an hourly basis, and who work on the days prior and subsequent thereto, will be allowed pay for the following holidays: January 1, February 22, May 30, July 4, Labor Day, Thanksgiving Day, and December 25.

All hourly employees above the grade of laborer who render actual service on these holidays will be allowed time and one-half in addition to pay for such holidays.

The Commission reserves the right to discharge an employee at any time for cause, and to terminate a provisional appointment when the exigencies of the service so require.

All provisional appointments will, at the end of each leave period, be so modified as to make such appointments correspond to the then existing rules and regulations of the Commission.

All appointments made prior to this resolution are hereby terminated, to take effect at the end of the next leave period accruing under such appointment. Conditions of service thereafter will be in accord with the rules and regulations of the Commission.

Mr. MADDEN. You decide whether or not his services are satisfactory, and he has nothing to say about it?

Colonel GOETHALS. No.

Mr. GILLETT. What I want to know is whether a man who comes here by contract with the United States has the right to keep those during the contract, or whether we by legislation can terminate that contract?

Colonel GOETHALS. You can terminate the contract by legislation, and can legislate that no family quarters will be furnished. The Comptroller holds that this is a contract.

Mr. KEIFER. Every single man has a contract, too, for bachelor quarters?

Colonel GOETHALS. Yes.

The CHAIRMAN. I understand this contract is to provide quarters for married men and single men who come from the United States.

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. There is no other class of men entitled to receive or who are receiving those privileges?

Colonel GOETHALS. There are some Panamanians and other aliens who hold them, but we are not extending them now to any but American citizens.

ADVANTAGES AND PRIVILEGES OF AMERICAN EMPLOYEES.

The CHAIRMAN. Then the American employees now on the Isthmus receive, in addition to house rent and room rent, whether married or single, fuel without charge and light without charge and water without charge, transportation over the Isthmus and return without charge?

Colonel GOETHALS. They receive transportation to the Isthmus without charge, and if they have not been in the service of the Commission for two years they receive transportation, but have to pay \$20 for their meals going back.

The CHAIRMAN. But if they remain two years they get free transportation back to the States?

Colonel GOETHALS. Yes.

The CHAIRMAN. And they receive a monthly pass over the Panama Railroad from Colon to Panama?

Colonel GOETHALS. They are allowed one round-trip pass once a month. It depends on where they want to go.

The CHAIRMAN. And they receive also half rates for their families?

Colonel GOETHALS. Yes.

The CHAIRMAN. And the men on the monthly roll, who are receiving those privileges that you refer to, also receive thirty days' leave of absence with pay?

Colonel GOETHALS. Six weeks' leave of absence with pay each year.

The CHAIRMAN. And thirty days' sick leave?

Colonel GOETHALS. Fifteen days' sick leave for each six months, accumulating not to exceed thirty days in any one year.

Mr. GARDNER. With pay?

Colonel GOETHALS. With pay.

The CHAIRMAN. And in addition to that they receive longevity pay, 5 per cent to begin with?

Colonel GOETHALS. Those belonging to the mechanical trades only.

The CHAIRMAN. The skilled mechanics receive longevity pay amounting to 5 per cent?

Colonel GOETHALS. After the first year's service, and 3 per cent additional on designated pay; but it can not run up to more than 25 per cent additional salary.

The CHAIRMAN. That longevity pay may run up to 25 per cent of the original salary?

Colonel GOETHALS. Yes.

Mr. KEIFER. It does not accumulate on each year.

Mr. GILLET. You do not mean to say 5 per cent at the beginning?

Colonel GOETHALS. Five per cent at the expiration of the first year's service.

The CHAIRMAN. They are receiving in addition to these things, as compensation for their services, as a matter of fact, from 40 to 47 per cent excess of what they could receive for the same service in the States?

Colonel GOETHALS. Practically that is a fair statement.

The CHAIRMAN. You think that is a fair statement?

Colonel GOETHALS. I think that is a fair statement of the condition. And they also receive, in addition to that—all employees—free medical attendance when sick, free medicine, and medical attendance at \$1 a visit to families when any members of the family are sick, and the families have the use of the hospitals on the payment of the necessary expenses for nurses in private rooms, if they go in that way, and then they have public wards where people are cared for.

The CHAIRMAN. And the skilled mechanics work eight hours a day?

Colonel GOETHALS. Eight hours a day.

The CHAIRMAN. And when they work more than eight hours a day they receive—

Colonel GOETHALS. Time and a half.

The CHAIRMAN. If a man receives 50 cents an hour and works an hour over, he receives 75 cents for that additional hour?

Colonel GOETHALS. That is right.

Mr. KEIFER. I wish you would go into the pay of the different classes of employees.

The CHAIRMAN. You can take up that in connection with the different estimates.

Mr. GRAFF. You did not speak of the houses being furnished.

Colonel GOETHALS. Yes: the houses are furnished.

The CHAIRMAN. Do we furnish the houses for these people, or do they do it themselves?

Colonel GOETHALS. We furnish the furniture and tables and chairs and beds and mattresses and stoves. They furnish the rest. They furnish the bed linen and table linen and crockery and china—

The CHAIRMAN. Which are practically luxuries. The restaurants and hotels are run by the Commission?

Colonel GOETHALS. They are run by the Commission.

The CHAIRMAN. What rate does the Commission give to employees here at these restaurants?

Colonel GOETHALS. Thirty cents a meal if they have a hotel coupon book, and 50 cents if they have not. Anybody can go in and pay 50 cents for a meal, and if he has a coupon book it costs 30 cents.

The CHAIRMAN. How does he get the coupon book?

Colonel GOETHALS. He gets it from his timekeeper, provided he has put in sufficient time in that month to cover the cost of the book, and the deduction is made on the pay roll.

The CHAIRMAN. Are those coupon books given to any but canal employees?

Colonel GOETHALS. They are not given to any but Canal employees?

The CHAIRMAN. So that none but Canal employees can get them?

Colonel GOETHALS. That is all.

Mr. GRAFF. And that covers the cost?

Colonel GOETHALS. Yes.

Mr. MADDEN. How does the cost of living here compare with the cost of living in America?

Colonel GOETHALS. I think it is less than in Washington, where I came from last, except as to servants. My cook costs \$50 gold per month, and she does nothing but cook. My man costs \$50 gold per month, and he looks after the rest of the house, and a laundress costs \$40 a month; so that amounts to paying \$140 a month for servants.

Mr. GILLETT. Did you bring them with you?

Colonel GOETHALS. No, sir; I found them on the Isthmus.

Mr. GILLETT. Have you a good cook?

Colonel GOETHALS. A fairly good cook. She came from the States—down from Washington—where she was getting \$45 a month. I pay her \$50 gold a month. Without food or anything else, it costs me \$140 a month just for servants, notwithstanding all the perquisites the Government is furnishing.

Mr. TAYLOR. Do you feed them?

Colonel GOETHALS. Yes, sir; as well as feed myself.

The CHAIRMAN. In addition to that, the Commission maintains the commissary store?

Colonel GOETHALS. Yes; practically. It is under the railroad company.

The CHAIRMAN. Practically, but the supplies and food and vegetables and other things consumed by the employees are obtained from this Commissary Department?

Colonel GOETHALS. Yes.

The CHAIRMAN. Is this commissary run simply at actual cost or at a profit?

Colonel GOETHALS. It is run at a profit sufficient only to reimburse the Panama Railroad for its outlay. That is what we have figured.

The CHAIRMAN. So that the groceries and vegetables and other things consumed by the employees here engaged in the construction of the Canal are obtained at practical cost?

Colonel GOETHALS. Wholesale prices; yes.

The CHAIRMAN. If you have a detailed statement there of the prices at which those things are furnished to the employees, I wish you would give it to the reporter and have him insert it.

Colonel GOETHALS. Yes, sir.

Following is the price list referred to:

PRICE LIST NO. 5 OF PANAMA RAILROAD COMPANY, COMMISSARY DEPARTMENT,
FOR OCTOBER, 1907.

INTRODUCTION.

The price list presented herewith includes all articles now in stock at the commissary, with the exception of cold-storage products.

On the arrival of each ship a price list of the refrigerated articles it brings is printed and copies are sent to all commissaries, where they may be procured upon application. At places where there are no branch commissaries supervisors of labor quarters and subsistence will be provided with a supply of these lists, which they will distribute. Lists will also be posted in the offices of each department.

All prices quoted in this and subsequent lists will be considered authoritative, and will govern commissary storekeepers in selling goods. Of course, however, certain articles, such as flour, sugar, etc., liable to either an increase or decrease, prices of these articles being governed by market prices in the States. When such changes occur notice thereof will be publicly posted in all commissaries.

It is entirely within the province of the purchaser, should he notice a discrepancy between the price charged and the price quoted, to call the attention of the storekeeper to the same, and if price is not adjusted satisfactorily to report the matter to the manager.

Where a fraction occurs in the price of an article, the commissary will take the benefit of the whole cent.

Purchasers are urged to include in cold-storage orders submitted to this office, orders for butter and eggs, as the line commissaries are at present not equipped with refrigerators for keeping these articles, which can be furnished by the plant at this point and delivered on the line in good condition.

The busiest hours in the commissaries are between 11 a. m. and 1 p. m., and after 5 p. m. It is during these hours that most of the working men make their purchases. Women are therefore requested to do as much as possible of their purchasing outside these hours.

Purchasers must bear in mind that all established rules must be adhered to, as they were made for the benefit of all. This refers particularly to the placing of orders in proper time.

Any failure in courtesy on the part of commissary employees and any instances of poor service should be reported at once to the manager.

JOHN RUBEK, *Manager.*

Approved:

W. G. BIERD,

Assistant to President and General Manager.

Approved:

GEO. W. GOETHALS,

'President.

Price list No. 5, Panama Railroad commissary department.

BUTTER.*

Brand.	Unit.	Size.	Price.
Table butter:			
Top O Can Simpson's.....	Tins.....	5s.....	\$1.86
Do.....	do.....	2s.....	.79
Do.....	do.....	1s.....	.42
Holstein Lestrades.....	do.....	25s.....	8.70
Do.....	do.....	10s.....	3.55
Do.....	do.....	5s.....	2.08
Petit & Reid.....	do.....	1s.....	.39
Do.....	do.....	2s.....	.73
Do.....	do.....	5s.....	.70
German.....	do.....	1s.....	.42
Cooking butter:			
Extra Goshen Lestrades.....	do.....	25s.....	6.30
Do.....	do.....	10s.....	2.53
Do.....	do.....	5s.....	1.30
Oleomargarine.....	Pounds.....	25s.....	1.04
Do.....	Tins.....	5s.....	.54
Do.....	do.....	10s.....	1.10

* This does not include butter sold from cold storage, the price of which appears in weekly cold storage lists.

EXTRACTS—FLAVORING.

Almond:			
Noreca.....	Bottles.....	8-ounce.....	\$0.43
Do.....	do.....	4-ounce.....	.22
Do.....	do.....	2-ounce.....	.14
Assorted:			
Noreca.....	do.....	8-ounce.....	.53
Do.....	do.....	4-ounce.....	.25
Do.....	do.....	2-ounce.....	.15
Lemon:			
Noreca.....	do.....	8-ounce.....	.51
Do.....	do.....	4-ounce.....	.33
Do.....	do.....	2-ounce.....	.14
Orange:			
Berwick's.....	do.....	8-ounce.....	.34
Do.....	do.....	4-ounce.....	.20
Do.....	do.....	2-ounce.....	.13
Rose-water:			
Rimmels.....	do.....	Quart.....	.32
Do.....	do.....	Pint.....	.17
Do.....	do.....	$\frac{1}{2}$ pint.....	.11
Levitt's.....	do.....	do.....	.13
Rose:			
Levitt's.....	do.....	8-ounce.....	.40
Do.....	do.....	4-ounce.....	.23
Do.....	do.....	2-ounce.....	.13
Strawberry:			
Noreca.....	do.....	8-ounce.....	.43
Do.....	do.....	4-ounce.....	.25
Do.....	do.....	2-ounce.....	.15
Do.....	do.....	16-ounce.....	.96
Vanilla:			
Noreca.....	do.....	8-ounce.....	.54
Do.....	do.....	4-ounce.....	.29
Do.....	do.....	2-ounce.....	.16
Do.....	do.....	16-ounce.....	.96

EXTRACT OF BEEF.

Liebig's.....	Jar.....	4-ounce.....	\$0.82
Do.....	do.....	2-ounce.....	.41
Rex.....	do.....	16-ounce.....	2.20
Do.....	do.....	4-ounce.....	.65
Do.....	do.....	2-ounce.....	.33

Price list No. 5, Panama Railroad commissary department—Continued.

FISH.

Brand.	Unit.	Size.	Price.
Anchovies in oil:			
French boneless.	Bottles	1s.	\$0.26
Do.	do.	1s.	.43
French, Rodet & Fils Frere	do.	1s.	.50
Bloaters, preserved, English.	Tin	1s.	.12
Clams:			
Scarborough Beach	Tins.	1s.	.12
Do.	do.	2s.	.16
Codfish:			
Whole, salted	Pound		.11½
Shredded.	Tins.	1s.	.17
Jemco boneless strips	Pound		.07½
Haddock.	do.		.07½
Codroes, Morton's.	Tins.	1s.	.15
Crabs:			
McMenamins' deviled	do.	1s.	.23
Do.	do.	2s.	.34
Haddock, Findon Morton's.	do.	1s.	.16
Herrings:			
Kipperd, Morton's	do.	1s.	.13
Fresh, Morton's	do.	1s.	.09
A la Sardine, English	do.	1s.	.14
Lobsters:			
Premier flats.	do.	1s.	.40
Booth's extra quality	do.	1s.	.27
Mackerels:			
Picked salted	Pound		.13
Boused, Morton's	Tins.	1s.	.16
Fresh, Morton's	do.	1s.	.12
Oysters, Dunbar's Blacklabel: Cove	do.	1s.	.10
Fate au Diable, English	do.	3-ounce	.07
Salmon, pickled salted	Pound		.10
Salmon steak, royal scarlet, unicorn	Tins.	1s.	.20
Sardines in oil:			
Rodet & Fils Frere	do.	1s.	.25
Alberts	do.	1s.	.24
Do.	do.	1s.	.22
Sunset	do.	1s.	.12
Sardines in tomatoes, Rodet & Fils Frere	do.	1s.	.25
Shrimps:			
Lopez Dukates Barataria	do.	1s.	.09
Do.	do.	2s.	.17

FRUITS IN SIRUP IN TINS.

Apricots, Nautical, Amcehat	Tins.	2½s.	\$0.24
Apples:			
Robin Hood	do.	3s.	.10
Hudson	do.	1-gallon	.28
Blackberries, Old Dominion	do.	2s.	.09
Cherries:			
Roanoke, Unicorn, preferred stock	do.	2½s.	.22
White, Paloma	do.	2½s.	.30
Cranberries, Bay State, Burnham & Morrill	do.	2s.	.16
Gooseberries, compass	do.	2s.	.11
Grapes, (Muscat), Goldenrod	do.	2½s.	.22
Greengages, Nautical	do.	2½s.	.21
Huckleberries, Robin Hood	do.	2s.	.12
Pears:			
Nautical Bartlett	do.	2½s.	.25
Noreca Bartlett	do.	1 gallon	.65
Peaches:			
Nautical Crawford	do.	2½s.	.22
Noreca, Acme yellow free	do.	1 gallon	.65
Plums-Egg, Nautical, Unicorn, Nabob	do.	2½s.	.26
Strawberries, Robin Hood, Ayar's	do.	2s.	.22

Price list No. 5, Panama Railroad commissary department—Continued.

FRUITS IN SPIRITS IN GLASS:

Brand.	Unit.	Size.	Price.
Apricots in brandy, Dallidet & Co.....	Bottles.....		
Cherries in brandy, Dallidet & Co.....	do.....		
Mirabelles (plums) in brandy, Dallidet & Co.....	do.....	Assorted.....	\$0.45
Pears in brandy, Dallidet & Co.....	do.....		
Prunes-Riene Claude, Dallidet & Co.....	do.....		
Apricots in brandy, Rodel & Fils Frere.....	do.....		
Cherries in brandy, Rodel & Fils Frere.....	do.....		
Mirabelles (plums) in brandy, Rodel & Fils Frere.....	do.....	Assorted.....	.75
Peaches in brandy, Rodel & Fils Frere.....	do.....		
Pears in brandy, Rodel & Fils Frere.....	do.....		
Prunes in brandy, Rodel & Fils Frere.....	do.....		
Raspberries in brandy, Rodel & Fils Frere.....	do.....		
Strawberries in brandy, Rodel & Fils Frere.....	do.....		
Cherries au Marasquino.....	do.....	1 pints.....	.32
Cherries au Marasquino, Rodel & Fils Frere.....	do.....	1 pints.....	.42
Cherries au Marasquino, Rodel & Fils Frere.....	do.....	Pints.....	.63

PRESERVES, JAMS, ETC., IN GLASS.

Apple butter:			
Heinz.....	Jars.....	3 pounds.....	\$0.32
Empire State.....	Tins.....	do.....	.29
Apricots.....			
Blackberries.....			
Damson.....			
Cherries (white).....			
Cherries (red).....			
Citron.....			
Pineapple.....			
Pears.....			
Peaches.....			
Orange (sweet).....			
Raspberries.....			
Strawberries.....			
Strawberries (German).....			
Figs, preserved, Dunbar.....	Tins.....	2 pounds.....	.40
		1 pound.....	.15

JAMS IN TINS.

Apple and lemon.....			
Black currant and lemon.....			
Damson and apple.....			
Gooseberry.....			
Mixed fruits.....	Morton's assorted.....	Tins.....	1s.....
Orange marmalade.....			
Plum.....			
Raspberry and apple.....			
Strawberry and gooseberry.....			
Apricot.....			
Blackberry.....			
Cherry (white).....			
Orange marmalade.....			
Pear.....			
Peach.....	Curtice Bros.'s assorted.....	Tin.....	1s.....
Raspberry.....			
Red currant.....			
Strawberry.....			
Fig, Cottam.....		do.....	1s.....
Mixed fruit, Morton's.....		do.....	7s.....

*Price list No. 5, Panama Railroad commissary department—Continued.***JAMS IN JARS.**

Brand.	Unit.	Size.	Price.	
Blackberry.....	Curtice Bros.....	Jar.....	1 pound.....	\$0.17
Cherry (white)....				
Cherry (red).....				
Gooseberry.....				
Pear.....				
Peach.....				
Orange marmalade				
Raspberry.....				
Red currant.....	Morton's.....	do.....	2 pound.....	.26
Strawberry.....				
Apricot.....				
Black currant				
Damson.....				
Greengage.....				
Gooseberry.....				
Plum.....				
Red currant.....	Dundee.....	Jar.....	1 pound.....	.23
Raspberry.....				
Strawberry.....				
Marmalade:				
Dundee.....	do.....	do.....	do.....	.13
Orange, English.....	do.....	do.....	do.....	.13

JELLIES IN CASES OF ASSORTED FLAVORS.

Apple.....	Curtice Bros.....	Jar.....	18 ounces.....	\$0.31
Black currant				
Red currant.....				
Quince.....				
Apple.....	Curtice Bros.....	Jar.....	10 ounces.....	.21
Black currant				
Grape.....				
Red currant.....				
Quince.....	Calf's-foot, Crosee & Blackwell.....	do.....	1 pint.....	.43
Red currant, Ritters.....				
	do.....	do.....	3 pound.....	.65

FRUITS, EVAPORATED OR DRIED.

Apples, evaporated.....	Tins.....	5s.....	\$0.70
Apricots, evaporated.....	do.....	5s.....	1.70
Peaches, evaporated.....	do.....	5s.....	1.07
Pears, evaporated.....	do.....	5s.....	.63
Prunes:			
Stewing.....	Boxes.....	Pounds.....	.09½
American Table, E. P. Dufort.....	Jars.....	1½ pounds.....	.30
Do.....	do.....	2 pounds.....	.45
French Table, Geo. Dalidet.....	do.....	1 pound.....	.18
Do.....	do.....	2 pounds.....	.30
Dates:			
Stuffed Cresta.....	do.....	1 pound.....	.87
Cresta, plain.....	do.....	2 pounds.....	.30
Figs, Cresta.....	do.....	1 pound.....	.30
Currants:			
Cleaned.....	Tins.....	10 pounds.....	1.25
Do.....	Packages.....	1s.....	.10
Raisins:			
Seeded, Cupid.....	do.....	1s.....	.14
Table, Clusters.....	do.....	Pound.....	.20
Royal, Scarlet.....	do.....	do.....	.18
Citron peel.....	Pound.....	10s.....	.30
Lemon peel.....	do.....	10s.....	.16
Lemon peel, candied, English.....	do.....	10s.....	.11
Orange peel, candied, English.....	do.....	10s.....	.11

Price list No. 5, Panama Railroad commissary department—Continued.

BREAD AND BISCUITS.

Brand.	Unit.	Size.	Price.
Bread, pilot, National Biscuit Co.	Tin	25 pounds	\$0.07
Bread, brown	do	3s	.12
Do	Pound	Individual	.06
Biscuits, comprising the following assortment from the National Biscuit Co.:			
Five o'clock tea	Tin	1s	.25
Butter thin	do	1s	.25
Water thin	do	1s	.25
Oswego	do	1s	.25
Sallines	do	1s	.25
Sultana fruit	Tin	1s	.25
Social tea	do	1s	.25
Graham wafers	do	1s	.25
Ginger wafers	do	1s	.25
Arrowroot	do	1s	.25
Uneeda	Package	3s	b. 06
Ginger, Uneeda	do	3s	b. 10
Ginger snaps	Tin	1s	b. 25
Sallines	do	1s	b. 25
Biscuits, comprising the following assortment from Huntley & Palmer:			
President wafers	Tin	1s	.33
Tea rusks	do	1s	.17
Fay	do	1s	.21
Junbo	do	1s	.20
Jamaica	do	1s	.42
Italian macaroons	do	1s	.40
Mixed, 24 kinds	do	1s	.30
Cafenoir	do	1s	.28
Coronation	do	1s	.25
Shortbread	do	1s	.48
Dessert	do	1s	.33
Tithits	do	1s	.14
Sponge rusks	do	1s	.28
Jam fingers	do	1s	.28
Boudoir (small), Huntley & Palmer	do	1s	.22
Butter, National Biscuit Co.	Pound		.06
Chatworth, Huntley & Palmer	Tin	1s	.35
Cracknels, Huntley & Palmer	do	1s	.23
Ginger (snaps), National Biscuit Co.	Pound		.13
Mixed creams, Huntley & Palmer	Tin	1s	.30
Maizena wafers, Huntley & Palmer	do	1s	.26
Rataña, Huntley & Palmer	do	1s	.42
Royal rusks, Huntley & Palmer	do	1s	.21
Petit Beurre, Huntley & Palmer	do	1s	.21
Soda, National Biscuit Co.	do	5s	.54
Soda Uneeda, National Biscuit Co.	Package		.06
Shredded wheat	do	1s	.12
Ginger snaps	Tin	1s	.30

a Per pound.

b Each.

CHEESE.

Cheddar loaf (English)	Pound		\$0.32
Edam	Cheese		.90
Gouda	Pound		.30
Swiss	do		.35
Young American	do		
Double Gloucester	do		
McLarens	Jar	1s	.25
Do	do	2s	.45
Do	do	3s	.90
Parmesan	Bottle	1s	.20

a See Cold Storage weekly price list.

Price list No. 5, Panama Railroad commissary department—Continued.

MISCELLANEOUS.

Brand.	Unit.	Size.	Price.
Ammonia, household.....	Bottle	Pints.	\$0.15
Bay rum, Michaelson.....	do	Quarts.	.25
Bird seed, Thurber's.....	Package	ls.	.10
Calomel and soda.....	Bottle		.10
Candles:			
Adamantine, bedroom.....	Set.	Pounds.	.12½
Coach.....	do	do	.12½
Coloring, assorted.....	Bottle	ls.	.45
Disinfectant, formaldehyde, Saponat.....	do	Large	.75
Fruit salts, Eno's.....	do	do	.56
Gum, chewing, Sen Sen.....	Box	Twenty, 5 cents.	.70
Icing glass.....	Bulk	Pound	1.00
Matches, Parrot.....	Box	12s.	.05
Nuts, mixed.....	Bulk	Pound	.21
Walnuts.....	do	do	.20
Paper, toilet.....	Packages.		.05
Powder, insect, Buhach.....	Tin.		.78
Powder, cockroach.....	Box		.60
Quinine, sulphate.....	Bottle		.50
Tanglefoot fly-paper.....	Sheet		.01½
Yeast, Magic.....	do	ls.	.06

MEATS—CANNED.

Bacon:			
Sliced, Libby's.....	Tins	1s.	\$0.25
Do.....	Jars	1s.	.24
Navy.....	Tins	5s.	1.36
Beef:			
Corned, Libby's.....	do	1s.	.11
Do.....	do	2s.	.12
Do.....	do	6s.	.72
Roast, Libby's.....	do	1s.	.11
Do.....	do	2s.	.20
Dried, chipped, Libby's.....	do	1s.	.20
Hash, corned, Libby's.....	do	1s.	.14
Do.....	do	2s.	.26
Boiled, Armour's.....	do	1s.	.10
Beefsteak and onions, Libby's.....	do	2s.	.25
Beefsteak, Libby's.....	do	1s.	.15
Beef and vegetables, Libby's.....	do	2s.	.22
Beefsteak and onions, Hamburger.....	do	1s.	.15
Do.....	do	½s.	.09
Brawn, Armour's.....	do	1s.	.11
Camphor.....		Pound	1.09
Chicken:			
Boned, Armour's.....	do	1s.	.43
Do.....	do	½s.	.24
Roast, Libby's.....	do	2s.	.60
Roast, Oxford.....	do	2s.	.27
Tamale.....	do	1s.	.18
Do.....	do	½s.	.12
Loaf.....	do	1s.	.22
Do.....	do	½s.	.17
Deviled.....	do	½s.	.35
Do.....	do	½s.	.15
Chili con carne.....	do	1s.	.14
Duck and green peas, Morton's.....	do	1s.	.42
Fowl, roast, Armour's.....	do	2s.	.28
Ham:			
Sliced, Armour's.....	do	1s.	.25
Loaf, Armour's.....	do	1s.	.17
Do.....	do	½s.	.11
Deviled.....	do	½s.	.05
Deviled, Underwood.....	do	½s.	.16
Deviled, Rex.....	do	½s.	.08
Do.....	do	½s.	.15
Devilled.....	do	½s.	.23
Kidneys, stewed.....	do	1s.	.13
Liver and bacon, Libby's.....	do	1s.	.13
Mutton:			
Roast, Armour's.....	do	1s.	.15
Roast, Libby's.....	do	1s.	.15
Do.....	do	2s.	.24
Oxtail, solid, Armour's.....	do	2s.	.20
Pig's feet, boned, Libby's.....	do	1s.	.13

Price list No. 5, Panama Railroad commissary department—Continued.

MEATS—CANNED—Continued.

Brand.	Unit.	Size.	Price.
Pork:			
Cooked, corned, Libby's.....	Tins	1s	\$0.12
Cutlets, Morton's.....	do	1s	.47
Pork and beans, Van Camp's.....	do	1s	.08½
Do.....	do	2s	.12½
Do.....	do	3s	.16
Sausage:			
Vienna, Libby's.....	do	1s	.13
Do.....	do	½s	.08
Vienna, Armour's.....	do	1s	.13
Do.....	do	½s	.08
Oxford pork.....	do	13-ounce	.12
Oxford, Burnham & Morrill.....	do	2s	.22
Oxford, Morton's.....	do	½s	.22
Cambridge.....	do	½s	.23
Lyoner, German.....	do	½s	.25
Mortedeicia Rodels.....	do	do	.26
Mortedeicia, De. c. o. G. Rodels.....	do	do	.32
Sausage and sauerkraut.....	do	1½s	.90
Stew:			
Irish.....	do	1s	.13
Do.....	do	2s	.25
Tongues:			
Lunch, Libby's.....	do	1s	.24
Do.....	do	2s	.57
Ox, Armour's.....	do	2s	.70
Lamb's, Armour's.....	do	1s	.22
Deviled, Armour's.....	do	½s	.10
Do.....	do	½s	.19
Ox.....	do	3s	1.02
Potted, Rex.....	do	½s	.70
Do.....	do	½s	.13
Tripe and onions.....	do	2s	.17
Turkey:			
Boned, Armour's.....	do	½s	.24
Do.....	do	1s	.43
Roast, Burnham & Morrill.....	do	2s	.25
Veal:			
Loaf, Libby's.....	do	1s	.18
Do.....	do	½s	.09

CEREALS.

Barley.....	Tin	5s	\$0.36
Cream of Wheat.....	do	2s	.23
Do.....	Package	2s	.15
Egg-O-Seo.....	do	do	.09
Force.....	do	2s	.14
Food, Mellin's.....	Bottle	Large	.65
Grapenut.....	Tin	1s	.16
Do.....	Package	1s	.13
Hominy.....	Tin	5s	.23
Meal:			
Yellow.....	do	Pound	.03
Do.....	Tin	5s	.28
White.....	do	5s	.28
White, granulated.....	Pound	do	.02
Oatmeal, coarse.....	Tin	5s	.36
Oats:			
Quaker.....	do	2s	.13
Shredded.....	Package	1½s	.10
Scotch.....	do	do	.13
Royal seal.....	Tin	2s	.13
Premier.....	do	2s	.13
Postum.....	Package	1s	.23
Do.....	do	½s	.12
Sago.....	Tin	5s	.52
Tapioca.....	do	5s	.55
Wheat:			
Whole.....	do	2s	.20
Shredded, whole.....	Package	1s	.20
Wheatina.....	Tin	1s	.10
Flour:			
Buckwheat, Leggett's.....	do	5s	.30
Millsbury's Best.....	Pound	do	.03½
Do.....	Tin	25s	1.25
Do.....	½-barrel	do	3.60

Price list No. 5, Panama Railroad commissary department—Continued.

LARD.

Brand.	Unit.	Size.	Price.
Lard:			
Wilcox Globe.....	Tin	5s.....	\$0.65
Do.....	do.	10s.....	1.30
Do.....	do.	25s.....	c. 1.25
Do.....	Tierce.		c. 1.25
Leaf, Swift & Co.....	Tin	5s.....	.65
Leaf, Swift's Silver Leaf.....	do.	10 pounds.....	1.30
Compound, Swift & Co.....	Keg.	100 pounds.....	c. 1.10
Pure leaf.....	Tin	1s.....	.15
Do.....	do.	2s.....	.28

* Per pound.

MILK AND CREAM.

Cream, Fussell's sterilized Golden Butterfly.....	Tin	1s.....	\$0.13
Milk:			
St. Charles evaporated.....	do.	Family.....	.09
Highland.....	do.	1 pint.....	.09
Van Camp's.....	do.	do.....	.09
Borden's Peerless evaporated.....	do.	Family.....	.09
Fussell's unsweetened Green Butterfly.....	do.	Pints.....	.09
Do.....	do.	Travelers.....	.06
Nestle's condensed.....	do.	Family.....	.10
Sweet Clover condensed.....	do.	do.....	.10
Borden's Eagle condensed.....	do.	do.....	.15
Borden's malted.....	Bottle	8-ounce.....	.28
Do.....	do.	Large.....	.50
Do.....	do.	Hotel.....	2.16
Do.....	do.	Trial.....	.06
Horlick's malted.....	do.	Hotel.....	3.05
Do.....	do.	Family Leg.....	.64
Tablets, Horlick's malted.....	do.	Small.....	.40
Do.....	do.	Large.....	.95

SOAPS, POLISHES, AND WASHING POWDERS.

Bath bricks.....	Cake.....		\$0.03
Borax:			
Lump.....	Pound.....		.11½
Powdered.....	Package.....	1s.....	.10
Gold Dust.....	do.....	1s.....	.02½
Do.....	do.....	4s.....	.18
Potash or lye.....	Tins.....	1s.....	.06
Pearline.....		Pound.....	.07
Sapallo:			
Scrubbing.....	Cake.....		.08
Hand.....	do.....		.08
Soap:			
Fairbanks Bros.....	do.....	1s.....	.04
Special hotel.....	do.....		.02½
Ivory.....	do.....		.05
Fels Naptha.....	do.....		.06
Fairy.....	do.....		.05
Castile.....	Pound.....		.14
Salt water.....	do.....		.17
Life buoy.....	do.....		.05
Soda, washing.....	do.....		.01
Old Dutch Cleanser.....	do.....		.08
Starch:			
Laundry.....	do.....		.04½
Laundry, Tiger.....	Box.....	6s.....	.44
Do.....	Package.....	1s.....	.06
Blue, ball.....	Pound.....		.19
Stove polish.....	Package.....	1s.....	.07

Price list No. 5, Panama Railroad commissary department—Continued.

POTTED MEATS, FISH, ETC.

Brand.	Unit.	Size.	Price.
Beef, potted, Armour's.....	Tins.....	1s.....	\$0.23
Tongue, potted, Armour's.....	do.....	1s.....	.23
Meats, potted, Rex.....	do.....	1s.....	.23
Entraments, assorted deviled.....	do.....	1s.....	.23
Caviarre:			
Russian, Ditman's.....	do.....	1s.....	1.06
Do.....	do.....	1s.....	.66
Do.....	do.....	1s.....	.34
Russian (best).....	Jars.....	1s.....	.65
		1s.....	.20
Pate De fois Gras.....	Jars.....		.77
Truffles, extra choice.....	Tins.....	1 pound.....	.70

PICKLED MEATS.

Beef:			
Family.....	Pounds.....	Barrels.....	\$0.08
Do.....	do.....	1/2 barrel.....	.08
Beef.....	Tierce (300 lbs)		18.60
Pork:			
Clear mess.....	do.....	Barrels.....	.12
Heavy mess.....	do.....	do.....	.13
Clear mess.....	do.....	1/2 barrel.....	.13
Heavy mess.....	do.....	do.....	.13
Pigs' tongues.....	do.....	do.....	.17
Pigs' feet.....	do.....	do.....	.08

CURED MEATS IN CANVAS.

Brand.	Unit.	Price.
Ham, Ferris.....	Pound.....	\$0.19
Hams:		
English York.....	do.....	.25
Morris Tropical.....	do.....	.18
Bacon.....	do.....	.32
Clover, Swift & Co.....	do.....	.20

PUDDINGS AND MINCE-MEAT.

Brand.	Unit.	Size.	Price.
Mince-meat, Atmore's.....	Tins.....	2s.....	\$0.20
Pudding, plum:			
Rodel's.....	do.....	2s.....	.42
Rodel's Nassford.....	do.....	1s.....	.25
Rodel's Leggett's, Premier & English.....	do.....	1s.....	.22
Do.....	do.....	2s.....	.42

MOLASSES, SIRUP, AND VINEGAR.

Molasses:			
Duff's.....	Tins.....	Quart.....	\$0.18
R. C. Williams & Co.....	Keg.....	5 gallons.....	2.22
New Orleans.....	do.....	10 gallons.....	4.40
Louisiana.....	Tin.....	Gallon.....	.38
Do.....	do.....	3s.....	.12
Do.....	do.....	2s.....	.08
Molasses and corn sirup.....	Keg.....	10 gallons.....	4.40
Sirup, maple:			
Old Homestead.....	Tin.....	Quart.....	.29
Kemp Day & Co.....	do.....	1 gallon.....	.92
Vinegar:			
Cider.....	Bulk.....	Gallon.....	.16
Malt, Crosse & Blackwell.....	Bottles.....	Quarts.....	.12
Malt, Heinz.....	do.....	do.....	.23

Price list No. 5, Panama Railroad commissary department—Continued.

MACARONI.

Brand.	Unit.	Size.	Price.
Macaroni:			
Italian, best	Packages	1s.	\$0.09
Domestic	do	1s.	.06
Spaghetti, Fertan	do	1s.	.10
Vermicelli:			
Italian-American	do	1s.	.10
Margerrie	do	1s.	.06

SOUPS.

Clam chowder, Burnham & Morrill	Tin	3s.	\$0.18
Do	do	1s.	.09
Soups:			
Franco-American	do	Quarts	.25
Do	do	Pints	.16
Crosse & Blackwell—			
Mulligatawny	do	do	.23
Ox tail	do	do	.23
Mock turtle	do	do	.23
Julienne	do	do	.18
Soup and bouillie	do	do	.18
Campbell's condensed	do	1s.	.10
Do	do	3s.	.25

PEAS, BEANS, AND GRAIN.

Brand.	Unit.	Price.
Lentils, American	Pounds	\$0.06
Pease:		
Split	do	.04
Dried green	do	.06½
Rice:		
Rangoon	do	.03½
Carolina Honduras	do	.07
Beans:		
Red kidney	do	.06½
Lima, dried	do	.07
Navy, or white	do	.03½
Pea	do	.03½
Garbanzos, Spanish	do	.07½

OLIVES.

Brand.	Unit.	Size.	Price.
Olives:			
Manzanilla	Bottle	1 liter	\$0.42
Do	do	½ liter	.24
Do	do	¼ liter	.17
Queen's Premier	do	28 ounces	.75
Do	do	18 ounces	.50
Do	do	10 ounces	.28
Do	do	6 ounces	.12
Spanish	do	Pints	.37
Do	do	½ pints	.21
Do	do	Quarts	.64
Stuffed	do	10 ounces	.34
Do	do	Small	.17

Price list No. 5, Panama Railroad commissary department—Continued.

OILS.

Brand.	Unit.	Size.	Price.
Oil:			
Astral.....	150 test.....	5-gallon tins..	\$0.90
Cotton-seed.....	Tin.....	5 gallon.....	4.00
Weason's salad.....	Bottle.....	Large.....	.28
Do.....	do.....	Small.....	.18
Morris olive.....	Tin.....	1 gallon.....	2.71
Do.....	do.....	1/2 gallon.....	1.29
Do.....	do.....	1/4 gallon.....	.67
Rodel's Superieur.....	Bottle.....	Pint.....	.45
Rodel's Vierge.....	do.....	do.....	.50

SALT.

Salt:			
Fine table, C. & B.....	Jars.....	4 pounds.....	\$0.10
Do.....	Packages.....	1 pound.....	.02
Freezing.....	Pounds.....	Pound.....	.01
Celery.....	Bottles.....	.....	.09
Cable, in bulk.....	.....	Pound.....	.01

PICKLES AND SAUCES.

Anchovy essence, English.....	Bottles.....	.....	\$0.40
Anchovy paste, Morton's.....	Tin.....	1/2.....	.08
Chowchow:			
Heinz.....	Bottle.....	18 ounces.....	.26
Morton's.....	do.....	.....	.15
Libby's.....	5 gallon kegs, each.....	.....	3.30
Dill pickles, style C.....	Bottle.....	.....	.32
Gherkins:			
Sweet, Heinz.....	Bottles.....	18 ounces.....	.24
Morton's.....	do.....	.....	.22
Heinz.....	Pail.....	.....	1.80
Sour, Heinz.....	Bottle.....	18 ounces.....	.26
Sour, Libby's.....	5 gallon kegs, each.....	.....	4.60
Mixed, sweet, Libby's.....	Bottles.....	18 ounces.....	.35
Mixed, sour, Libby's.....	do.....	do.....	.27
Mixed, E. S., Heinz.....	1/2 barrel.....	.....	5.40
Do.....	Keg.....	5 gallons.....	3.30
Mixed, E. S., Morton's.....	do.....	.....	.15
Onions:			
Heinz.....	Bottles.....	18 ounces.....	.32
White, Libby's.....	5 gallon kegs, each.....	.....	5.20
Capers, Rodels & Fils Frere.....	Bottles.....	.....	.26
Chutney, Mango, Crosse & Blackwell.....	Pints.....	.....	.24
Ketchup:			
Tomato, Blue Label, Crosse & Blackwell.....	do.....	do.....	.19
Mushroom, Crosse & Blackwell.....	Bottle.....	1/2 pints.....	.12 1/2
Imperial, Heinz.....	do.....	.....	.23
Horse-radish, Heinz, evaporated.....	do.....	8 ounces.....	.22
Mustard dressing, Heinz.....	do.....	Improved.....	.24
Relish:			
Yorkshire, Goodall's.....	do.....	1/2 pints.....	.21
India, Heinz.....	do.....	Style B.....	.25
Sauce:			
Cranberry.....	Tins.....	.....	.19
Chili, Heinz.....	do.....	18 ounces.....	.26
Anchovy, English.....	Bottle.....	Pint.....	.40
Worcester, Lea & Perrins.....	do.....	Quarts.....	.75
Do.....	do.....	Pints.....	.45
Do.....	do.....	1/2 pints.....	.25
Tobasco.....	do.....	.....	.35
Salad dressing:			
Durkee's.....	do.....	1/2 pints.....	.23
Do.....	do.....	Pints.....	.40

Price list No. 5, Panama Railroad commissary department—Continued.

VEGETABLES IN TINS.

Brand.	Unit.	Size.	Price.
Asparagus:			
Jemco.....	Tins	2½s.	\$0.44
Rodel's French White.....	do	1s.	.18
Rodel's French Green.....	do	1s.	.18
Tips-Del Monte, Eldorado.....	do	1s.	.26
California.....	do	2s.	.44
Republic.....	do	2½s.	.42
Beets:			
Burnham & Morrill.....	do	2s.	.09
Do.....	do	3s.	.12
Beans:			
Baked in tomato sauce, Heinz.....	do	Small.	.10
Baked, Heinz individual.....	do	do	.06
Do.....	do	Medium	.14
Do.....	do	Large	.18
Stringless, Nautical.....	do	2s.	.10
Lima, Sinclair.....	do	2s.	.10
French (string).....	do	1s.	.12
French Haricot.....	Tin	1s.	.17
German, new sliced.....	do	3s.	.15
Carrots, Burnham & Morrill.....	do	2s.	.09
Corn:			
Sugar, Yellow Label.....	do	2s.	.12
Hulled, Cereal Food Co.....	Tins	3s.	.10
Conserva Pomidero, Morris & Co.....	Pound	do	.21½
Conserva Pomidero, Compania Transatlantica.....	do	do	.08
Mushrooms:			
French, Rodel & Fils Frere.....	Tins	½s.	.22
Rodel & Fils Frere.....	do	½s.	.34
Do.....	do	½s.	.18
American, choice.....	do	½s.	.30
Macedoine of vegetables, English.....	do	Pints.	.15
Okra:			
Premier.....	do	3s.	.15
Shield.....	do	2s.	.12
Parsnips, Burnham & Morrill.....	do	2s.	.08
Peas:			
Sifted, American Riverside.....	do	2s.	.13
Sifted, June, Kemp Day & Co.....	do	1 gallon.	.56
Sifted, Amcehat Ex.....	do	2s.	.20
June.....	do	Gallon	.47
400 Grand, French.....	do	2s.	.21
Clipper Brand.....	do	2s.	.10
Petit Pois (French):			
Geo. Dallidet & Co.....	do	2s.	.15
Rodel & Fils Frere.....	do	2s.	.22
Pumpkin, Conewango.....	do	3s.	.10
Sauer Kran, A. L. Hemmingway & Co., Anchor.....	do	3s.	.12
Spinach, Noreca, Ceres.....	do	3s.	.12
Squash, Marrow, Royal Scarlet.....	do	3s.	.10
Succotash, Jemco.....	do	2s.	.10
Tomatoes:			
Maltese, Fair and Square, Royal Scarlet.....	do	3s.	.10
Maltese Fair, etc.....	Tin	2s.	.14
Do.....	do	1 gallon.	.40
Greenwich.....	do	Gallon	.38
Turnips, Burnham & Morrill.....	do	2s.	.20½

SUGAR.

Sugar:			
Granulated.....	Sacks	5 pounds	\$0.20
Do.....	Bulk	Pound	.03½
Cut loaf.....	Sacks	do	.06
Powdered.....	Tins	5 pounds	.56
Domino.....	Box	do	.35
Yellow, No. 18.....	Bulk	do	.03

Price list No. 5, Panama Railroad commissary department—Continued.

COOKING POWDERS, ETC.

Brand.	Unit.	Size.	Price.
Powder:			
Baking, Royal.....	Tins.....	1 pound.....	\$0.44
Do.....	do.....	1 pound.....	.23
Insect, Buhach.....	do.....	1 pound.....	.78
Bird's Custard.....	Packages.....	1 pound.....	.13
Ice cream.....	do.....	do.....	.10
Jellycon.....	do.....	do.....	.10
Baking, Rumfords.....	Tin.....	1s.....	.11
Do.....	do.....	1s.....	.22
Do.....	do.....	5s.....	1.02
Cornstarch.....	Packages.....	1s.....	.06
Gelatine:			
Crosse & Blackwell.....	do.....	1 ounce.....	.08
Do.....	do.....	2 ounces.....	.15
Soda, bi-carb.....	do.....	do.....	.02
Powder, egg, Bird's.....	Tin.....	do.....	.06

SPICES AND DRIED HERBS.

Cinnamon:			
Stick.....	Pound.....	do.....	\$0.18
Ground.....	Tin.....	1s.....	.11
Currie powder:			
Crosse & Blackwell.....	Bottle.....	1s.....	.27
R. C. Williams.....	Tin.....	1s.....	.18
Morris.....	do.....	1s.....	.10
Gloves:			
Whole.....	do.....	1s.....	.14
Ground.....	do.....	1s.....	.14
Ginger, ground.....	do.....	1s.....	.08
Leaves, bay.....	do.....	1s.....	.15
Mace, ground, Blue Ribbon.....	do.....	1s.....	.19
Mint, dried, J. E. Morris & Co.....	do.....	1s.....	.14
Mustard:			
Coleman's.....	do.....	1s.....	.10
French, Rodel et Fils.....	do.....	Jar.....	.12
Nutmegs.....	do.....	1s.....	.25
Pepper:			
Black, ground.....	do.....	1s.....	.13
White, ground.....	do.....	1s.....	.11
Do.....	do.....	1s.....	.06
Cayenne, ground.....	do.....	1s.....	.15
Black, seed.....	do.....	1s.....	.11
Sage, dried.....	do.....	1s.....	.07
Spice, pudding.....	do.....	1s.....	.19
Thyme, dried.....	Tin.....	1s.....	.09

CHOCOLATE, COCOA, AND COFFEE.

Chocolate:			
Runkels Vienna.....	Package.....	1s.....	\$0.06
Fry's Caracas.....	do.....	1s.....	.19
Unsweetened, Baker's.....	Pound.....	do.....	.33
Milk, Peter's.....	Pack.....	1s.....	.13
Do.....	do.....	1s.....	.26
Repetti's.....	Pound.....	do.....	.24
Mallards.....	Pack.....	1s.....	.06
Cocoa:			
Runkels.....	do.....	1s.....	.20
Do.....	do.....	1s.....	.37
Repetti's.....	do.....	1s.....	.37
Do.....	do.....	1s.....	.20
Van Houten.....	do.....	1s.....	.85
Do.....	do.....	1s.....	.44
Reichardt.....	Tin.....	1s.....	.72
Do.....	do.....	1s.....	.20
Anchor.....	do.....	1s.....	.37
Do.....	do.....	5s.....	1.65
Coffee, ground:			
Jamaica.....	Pound.....	do.....	.20
No. 1 Central American.....	do.....	do.....	.24
No. 2 Central American.....	do.....	do.....	.21
Mocha and Java.....	Tin.....	5s.....	1.70
Isthmian-American.....	do.....	5s.....	1.70
Do.....	do.....	10s.....	3.40
Do.....	do.....	2s.....	.70
Coffee, roasted:			
Mocha and Java.....	do.....	2s.....	.70
1 More Cup brand.....	do.....	2s.....	.40

72 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Price list No. 5, Panama Railroad commissary department—Continued.

TEAS.

Brand.	Unit.	Size.	Price.
Tea:			
Black, English Breakfast.....	Tin.....	2s.....	\$1.20
Green, Young Hyson.....	do.....	2s.....	1.20
Black, Omphale.....	do.....	1s.....	.17
Do.....	do.....	1s.....	.09
Black, Ceylon, loose.....	Pound.....	.....	.31
New Ceditury.....	Package.....	1s.....	.15
Ceylon, loose, Soetuchong.....	Pound.....	.....	.24

WATERS, MINERAL AND SOFT DRINKS.

	Bottles.	Pints.	
Cider, Corry & Co.....	do.....	do.....	\$0.10
Ginger ale, Corry & Co.....	do.....	do.....	.10
Ginger beer, Corry & Co.....	do.....	do.....	.10
Lemonade, Corry & Co.....	do.....	do.....	.10
Kola champagne, Corry & Co.....	do.....	do.....	.10
Soda, Corry & Co.....	do.....	do.....	.10
Ginger ale, Ross's.....	do.....	do.....	.10
Kola champagne, Ross's.....	do.....	do.....	.10
Appollinaris.....	do.....	do.....	.11
Genoveva.....	do.....	do.....	.08
Perrier.....	do.....	do.....	.10
Red Raven Splits.....	do.....	do.....	.11
White Rock.....	do.....	do.....	.13
Hunyadi.....	do.....	do.....	.25

CONFECTIONERY.

Almonds:			
Sugared, Valencia.....	Pounds.....	.....	\$0.40
Shelled, Valencia.....	do.....	.....	.44
Huyler's, burnt.....	Box.....	1s.....	.39
Huyler's, chocolate, burnt.....	do.....	1s.....	.26
Bon Bons:			
Huyler's, chocolate.....	do.....	1s.....	.48
Powel's chocolate.....	do.....	1s.....	.30
Fry's.....	do.....	1s.....	.22
Cadbury's.....	do.....	.....	.22
Crystallized pastilles.....	Pounds.....	.....	.25
Caramels, Borden's full cream.....	Box.....	1s.....	.07
Dolces Genoa.....	Tin.....	1s.....	.32
Fruits:			
Chrystallized Metz.....	Box.....	1s.....	.17
Do.....	do.....	1s.....	.30
Sweets:			
Huyler's fine mixed.....	do.....	1s.....	.39
Pascall's assorted.....	Bottle.....	1s.....	.23
Chu Chu.....	Package.....	.....	.06

Price list No. 5, Panama Railroad commissary department—Continued.

CIGARS, CIGARETTES, AND TOBACCOS.

Cigars:	Price.
After Suppers, Jamaica, each	\$0.02½
Bouquets, Jamaica, do	.06
Conchas especiales, Jamaica, each	.05
Flora, Jamaica, each	.15
Governors, Jamaica, do	.08
Gentlemen, Jamaica, do	.10
Ideales, Jamaica, do	.08
1891, Jamaica, do	.07
Londres, Jamaica, do	.07
Panetelas, Jamaica, do	.05
Reina Victoria, Jamaica, do	.07½
Caballeros, Jamaica, do	.08
Flor Fumas, Havana, do	.07
Panetelas, Havana, do	.07
Cigarettes:	
Arros Hebra, Havana, package	.05
Bouton Rouge (Egyptian) tin	1.00
Needlepoint, package	.05
Pectoral, Havana, do	.05
Three Castles, Willis & Co., tin	.25
Louisville, package	.05
Maypole, do	.05
Turkish Trophies—	
Plain, box	.10
Cork tip, do	.10
Murad Turkish, do	.15
Mogul Turkish—	
Plain, do	.15
Cork tip, do	.15

Cigarettes—Continued.	Price.
Richmond Gem, box	\$0.05
Home Run, package	.05
Melachrino No. 8—	
Gold tip, do	.15
Cork tip, do	.15
Shaw tip, do	.15
Plain tip, do	.15
Melachrino No. 5—	
Gold tip, do	.20
Plain tip, do	.20
Cigarette papers, book	.02
Tobaccos:	
Smoking—	
Bull Durham, package (2 ounce)	.10
Cross Cut, package	.08
Capstan—	
Mild, tins (½ pound)	.25
Medium, do	.25
Full, do	.25
Latakia, do	.35
Lucky Strike, do	.25
Mail Pouch, package	.06
Old English Curve Cut, tin (4 ounces)	.25
Chewing—	
Drummond's Natural Leaf, plug	.20
Piper Heidsieck, plug	.20
Star, pound	.45

BOOTS AND SHOES.

	S. No.	Unit.	Price.
GENTS' SHOES.			
Military tan Oxford	18188	Pair	\$2.50
Military vicl Oxford	18224	do	2.60
Military cold Oxford	18314	do	3.00
Military box Oxford	18554	do	2.50
Military wax bals	18584	do	2.60
Satin calf globe bals, plain "Orange Blossom"	32239	do	1.65
Storm calf blu. No. 616 "Prog. Union"	32242	do	2.50
Tan bals, tip No. 677 "Jester"	32244	do	2.10
Oil grain plain bals. No. 55 "Louisiana"	32248	do	1.75
Grain high cut, brogan with buckle "Winner"	32251	do	1.60
Army bals	32465	do	2.75
Tan goat bals	32729	do	1.70
Vicl calf tip, blu., "Iron Duke"	32731	do	2.10
Vicl calf plain blu., "Blucher"	32732	do	2.10
Seal grain H. C. blu. No. 886 "Uncle Sam"	32927	do	2.75
Box calf, high cut blu. No. 881 "Trooper"	33161	do	4.15
Tan calf blucher, No. 615 "Storm"	33215	do	2.70
Grain tip, No. 1330 "Tornado"	33985	do	2.95
Royal calf blu., No. 2152	34142	do	4.00
"Veteran"		do	1.65
Satin calf, M. S. tap. No. 77	34561	do	1.70
Tan blucher	34726	do	3.75
Black calf bals., tip No. 1325	34796	do	2.30
Cold. calf blu., cap No. 1994	34995	do	3.75
Cold. kid blu., tip No. 1996	34996	do	4.00
Pat. leather button blu. "Senate"	34998	do	4.60
Vicl M. S. button tip, No. 99	35212	do	2.10
Box calf blu., cap	35387	do	2.00
Satin calf bals. No. 1796	35478	do	1.65
K. calf blu., cap No. 1840 "Suburban"	35479	do	2.40
Satin calf blu., tap. No. 769 "Pike"	35481	do	1.85
Kid blu., No. 1732 "Guld"	35482	do	1.65
Kid blu., tip. No. 2111 "Crown"	35483	do	3.40
Velour calf, blu., tip. A 1733 "Atlantic"	35484	do	4.00
Box calf blu., tip. P 676 "Madison"	35485	do	2.75
Kid. blu., tip. A 1986 "Atlantic"	35486	do	4.00
Kid blu., cap "Hoke"	35493	do	2.80
Gleased Kang., "Am. Gent." Corlies	35494	do	4.00
Tan blu., "Surveyor," high boots	35497	do	7.35
Satin calf, "Merit" Kin.	35751	do	1.95
Kang. calf, bals, plain, No. 806	35768	do	2.00

74 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Price list No. 5, Panama Railroad commissary department—Continued.

BOOTS AND SHOES—Continued.

	S. No.	Unit.	Price.
GENTS' SHOES—continued.			
Kang. calf, bals, tap, No. 804 "Dictator".....	35769	Pair.....	\$1. 85
Bals, cap, "Am. Gent." vici.....	35838	.....do.....	3. 50
Velour calf butt, "Empire".....	35839	.....do.....	3. 50
Box calf blu., "Rugby".....	35842	.....do.....	3. 50
Vici kid bals, tip, "Argyle".....	35844	.....do.....	2. 50
Tan blu., "Western," tap.....	35845	.....do.....	4. 00
Vici Oxford, "Argyle".....	35846	.....do.....	2. 50
Box calf blu., tip.....	35877	.....do.....	2. 50
Patent Oxford.....	36287	.....do.....	1. 75
Kid bals., No. 873.....	36421	.....do.....	2. 00
Chocolate blu., No. A 1996, Kid.....	36422	.....do.....	5. 00
Velour calf bals, No. A 1738.....	36423	.....do.....	4. 00
Pat. kid bals, blu., No. A 2304.....	36424	.....do.....	5. 00
White canvas blu., No. 275.....	36918	.....do.....	1. 70
White canvas Oxford, No. 5160.....	36919	.....do.....	1. 50
White duck blu. Oxford:			
No. 4118.....	36922	.....do.....	1. 70
No. 4119.....	36923	.....do.....	1. 70
Rubber storm-overs.....	37285	.....do.....	. 90
Tan opera slippers, No. 478.....	37348	.....do.....	1. 50
Yachting, No. 95-1.....	37418	.....do.....	1. 15
White canvas blu.:			
Oxford.....	37432	.....do.....	1. 35
Bals.....	37433	.....do.....	1. 35
Pat. leather blu. bals.....	37448	.....do.....	2. 10
Do.....	37449	.....do.....	2. 10
Tan blu. Oxford.....	37451	.....do.....	2. 40
Tan grain bals.....	37459	.....do.....	3. 65
LADIES' SHOES.			
Vici Kid:			
1 Bar sandal, No. 297.....	36156	Pair.....	1. 75
Strap beaded, No. 285.....	36157	.....do.....	1. 80
"Security" Gibson Ties.....	36264	.....do.....	2. 00
"Am. Lady" Pol. Redfern.....	36276	.....do.....	3. 40
"Am. Lady" blu. Arctic.....	36277	.....do.....	3. 50
"Vassar" blue Arctic.....	36278	.....do.....	2. 45
"Watch Us" Pol. Imp.....	36279	.....do.....	1. 80
"Picnic" Gibson Ties.....	36281	.....do.....	1. 75
"Picnic" Oxf. Imp.....	36282	.....do.....	1. 75
Pumps Imp. white queen.....	36283	.....do.....	1. 60
Gibson Ties:			
"White Tyrolean".....	36284	.....do.....	1. 60
"White Plaza".....	36285	.....do.....	2. 10
Vici:			
"Am. Lady" blu. Oxf. cold.....	36286	.....do.....	2. 75
Do.....	36288	.....do.....	2. 75
"Easy Walker" Ties, Min.....	36428	.....do.....	2. 35
"Crown" Picnic Ties.....	37111	.....do.....	1. 75
"Watch Us" Pol. Crown.....	37112	.....do.....	1. 80
Tan "Picnic" Ties, Cent.....	37113	.....do.....	1. 75
Vici:			
"Am. Lady" Ties, Elba.....	37231	.....do.....	2. 75
"Am. Lady" Pol. Col.....	37329	.....do.....	3. 10
Tan "Am. Lady" Oxf. Redfern.....	37332	.....do.....	2. 75
Gun metal Am. Lady oxf., Luc.....	37333	.....do.....	2. 75
Chocolate Am. Lady ties, Elba.....	37334	.....do.....	2. 75
Patent:			
Am. Lady ties, Redfern.....	37335	.....do.....	2. 75
Am. Lady pumps, Worth.....	37336	.....do.....	3. 10
Vici Am. Lady pumps, Worth.....	37337	.....do.....	3. 10
Patent Am. Lady ties, Redfern.....	37338	.....do.....	3. 10
Vici Am. Lady ties, Redfern.....	37339	.....do.....	3. 10
Patent Am. Lady oxf., Luc.....	37341	.....do.....	3. 10
Kang. Am. Lady oxf., Vassar.....	37342	.....do.....	3. 10
Vici:			
Am. Lady oxf., Cold.....	37343	.....do.....	3. 10
Am. Lady ties, Redfern.....	37344	.....do.....	2. 75
Patent:			
Am. Lady, No. 1086.....	37345	.....do.....	2. 35
Am. Lady Christie ties, No. 587.....	37346	.....do.....	2. 30
Patent side lace, oxf.....	37434	.....do.....	3. 00
Patent Christie ties.....	37435	.....do.....	3. 00
Patent oxfords.....	37436	.....do.....	2. 00

Price list No. 5, Panama Railroad commissary department—Continued.

BOOTS AND SHOES—Continued.

	S. No.	Unit.	Price.
MISSES' SHOES.			
White "Newport" Gibson ties.....	36257	Pair.....	\$1.10
Vici:			
"Picnic" Gibson ties.....	36262	do.....	1.40
"Security" Gibson ties.....	36265	do.....	1.80
"Watch Us" Gibson ties.....	36268	do.....	1.60
"Blue Grain" pol. perf.....	36271	do.....	1.40
"Mustard" blu. perf.....	36274	do.....	1.40
"Easy Walker" ties, men.....	36429	do.....	2.00
"Security" blu. auto.....	36431	do.....	2.35
"Security" blu. auto.....	36432	do.....	2.00
"Security" blu. mln.....	36434	do.....	2.35
"Security" blu. mln.....	36435	do.....	2.00
Tan "Picnic" ties, perf.....	36698	do.....	1.55
Patent blu. No. 439.....	37347	do.....	2.00
CHILDREN'S SHOES.			
White:			
"Newport" Gibson ties.....	36258	do.....	1.00
"Newport" Gibson ties.....	36259	do.....	.90
Tan "Picnic" Gibson ties.....	36261	do.....	1.35
Vici:			
"Picnic" Gibson ties.....	36263	do.....	1.30
"Security" Gibson ties.....	36266	do.....	1.55
"Easy Walker" ties.....	36267	do.....	1.80
"Watch Us" pol. welt.....	36269	do.....	1.40
"Blue Grain" pol. perf.....	36272	do.....	1.30
"Blue Grain" pol. perf.....	36273	do.....	1.00
"Mustard" blu. perf.....	36275	do.....	1.30
"Security" blu. auto.....	36425	do.....	1.80
"Security" blu. oxf.....	36426	do.....	1.55
"Security" blu. mln.....	36427	do.....	1.80
"Security" blu. auto.....	36433	do.....	1.55
"Mustard" blu. perf.....	36436	do.....	1.00
"Watch Us" pol. 1 turn.....	36699	do.....	1.20

GENTS' FURNISHING.

Aprons, oil-skin.....	32254	Each.....	\$1.20
Coats and vests, tweed.....	13387	Pair.....	4.50
Coats:			
White drill.....	35756	Each.....	1.70
Khaki.....	36163	do.....	1.75
Oil, southwester.....	32255	do.....	.80
Colored jean, No. 102c, Battle ship brand.....	37476	do.....	.85
Waterproof, rubber.....	34175	do.....	9.50
Do.....	35573	do.....	6.75
Do.....	35568	do.....	7.25
Do.....	35318	do.....	7.15
Do.....	35317	do.....	7.50
Waterproof, rubber, with capes.....	35319	do.....	10.25
Do.....	33956	do.....	10.75
Luster—			
No. 1.....	37126	do.....	.35
No. 2.....	37127	do.....	.50
No. 3.....	37128	do.....	.66
No. 4.....	37129	do.....	.85
No. 5.....	37130	do.....	1.35
No. 6.....	37132	do.....	1.66
No. 7.....	37133	do.....	2.00
Drill-off, waterproof.....	35389	do.....	3.00
Do.....	35391	do.....	3.15
Jumpers, blue duck.....	18619	do.....	.55
Overalls:			
Striped with bibs.....	35164	do.....	.55
255s.....	37143	do.....	.45
Without bibs.....		do.....	.44
Apron, colored jean—			
No. 228A, Battle ship brand.....	37472	do.....	.85
No. 31A, Battle ship brand.....	37475	do.....	.85
Pants:			
Brown linen.....	35719	do.....	1.95
Brown linen No. 4449 D.....	34818	do.....	1.75
Khaki No. 200.....	35612	do.....	1.90
Khaki No. 24 D.....	35989	do.....	1.75
Khaki, riding.....	34433	do.....	1.85
Do.....	18284	do.....	5.00

Price list No. 5, Panama Railroad commissary department—Continued.

GENTS' FURNISHING—Continued.

	S. No.	Unit.	Price.
Pants—Continued.			
Olled, southwester	32254	Each	\$1. 15
Tweed	34922	do	2. 15
Athletic	34934	do	1. 20
Colored jean—			
No. 4168 D	36335	do	1. 25
No. 228 P, Battle ship brand	37473	Pair	. 80
No. 254, Battle ship brand	37474	do	. 85
Blue, Battle ship brand, No. 4455 B	34816	do	1. 25
White duck	34623	do	1. 25
White duck No. 200	35721	do	1. 60
Running	37415	do	. 40
Khaki No. 25 D	37246	do	1. 14
Suits:			
White duck, two pieces	34617	Suit	3. 25
Crash, two pieces	18272	do	4. 25
Brown linen, two pieces	18541	do	4. 50
Tweed, three pieces	18548	do	9. 75
Collars:			
Linen—			
No. 209	35988	Each	. 20
No. 275	36112	do	. 10
Ashland, front 1½ inches, back 1½ inches	33914	do	. 09
Pearl, front 2 inches, back 1½ inches	33915	do	. 09
Leola, front 2½ inches, back 2 inches	33913	do	. 09
Nevada, front 2 inches, back 1½ inches	34584	do	. 09
Hartford, front 2½ inches, back 2½ inches	34584	do	. 09
Missouri, front, 2½ in.; back, 1½ in	34584	do	. 09
Theta, front, 1½ in.; back, 2 in	34584	do	. 09
Waterproof—			
Stanton, 1½ in.; back, 1½ in	34269	do	. 09
Adams, front, 2 in.; back, 1½ in	34271	do	. 09
Shirts:			
Maline—			
No. 678	35992	do	. 95
No. 688	35986	do	1. 16
No. 695	35989	do	1. 35
White silk	35987	do	3. 00
Ecu (working)	35761	do	. 55
Black saten	35166	do	. 72
Colored dressed bosoms	11228	do	. 75
Do	18623	do	. 48
Princely	18622	do	. 72
The Judge, 300	18617	do	. 77
The Judge, Nonpareil	35165	do	. 95
Negligee—			
Claremont	34537	do	. 95
Near silk	36163	do	2. 00
Black	35259	do	. 75
Fancy Ceylon wool	34746	do	. 80
Cold, flannel, collars attached	18233	do	1. 15
White. Flannel, with collars	18261	do	1. 15
Dressed bosoms reliable	18615	do	. 55
Dress bosoms-Dynamo	18282	do	. 55
Pleated bosoms	30243	do	. 95
Do	36495	do	1. 12
Pleated bosoms, The Judge	18234	do	1. 00
Negligee, colored	33556	do	. 75
White cellular	37152	do	1. 00
Negligee, No. 440	37382	do	. 76
Sleeveless	37416	do	. 40
Belts:			
Tan leather	34616	do	. 46
Do	34641	do	. 62
Leather—			
No. 740	35994	do	. 50
No. E, 1114	37116	do	. 25
No. E, 53	37117	do	. 40
No. E, 58	37118	do	. 48
No. E, 59	37119	do	. 50
No. E, 61	37121	do	. 72
No. E, 56	37122	do	. 72
Bands, elastic arm	18291	Pair	. 05
Fobs:			
Black silk ribbon	35544	Each	1. 80
Do	35543	do	. 90
Do	35542	do	1. 65
No. 7163, gold ribbon	34952	do	3. 40
No. 4415, black silk ribbon with gold pendant	33283	do	5. 40

Price list No. 5, Panama Railroad commissary department—Continued.

GENTS' FURNISHING—Continued.

	S. No.	Unit.	Price.
Garters:			
Brighton-Hale.....	34158	Pair.....	\$0.10
Brighton silk.....	34157	do.....	.16
Ball-bearing.....	34156	do.....	.18
Leather.....	37457	do.....	.28
Gauntlets:			
Do.....	36466	do.....	.75
Do.....	36467	do.....	.76
Do.....	36469	do.....	1.00
Gloves, white cotton.....	35591	do.....	.20
Helmets:			
White.....	18495	Each.....	.35
Khaki.....	18496	do.....	.95
Hats:			
Felt—			
Renown, black and cinnamon.....	35307	do.....	1.20
Gotham, black and cinnamon.....	35154	do.....	2.60
Straw, Lazard & Co.....	36472	do.....	2.40
Do.....	36473	do.....	2.00
Straw.....	35311	do.....	.80
Do.....	36367	do.....	.60
Do.....	35122	do.....	1.40
Do.....	35312	do.....	.66
Oil, Southwester.....	32253	do.....	.25
Soft felt, wide brim.....	35249	do.....	1.70
Felt, Terra.....	36575	do.....	2.70
Felt, pearl Clara.....	36452	do.....	1.50
Panama—			
2 A.....	36926	do.....	4.00
1 A.....	36927	do.....	5.00
A.....	36928	do.....	7.00
B.....	36929	do.....	8.00
C.....	36931	do.....	9.00
Stetson.....	35553	do.....	3.75
Do.....	35552	do.....	4.15
Handkerchiefs:			
White cambrie.....	34794	do.....	.25
Do.....	34793	do.....	.20
White lawn.....	34539	do.....	.05
Linen:			
Bordered, i.....	37145	do.....	.16
Bordered, H. S., i.....	37146	do.....	.22
Do.....	37147	do.....	.24
Do.....	34621	do.....	.07
Linen bordered, i.....	37145	do.....	.16
Aliz. hemmed, A23, A13.....	36463	do.....	.05
Leggings:			
Leather, tan.....	18175	Pair.....	2.85
Khaki canvas.....	35133	do.....	.64
Laces:			
Shoe—			
Flat, black, 3-4.....	34148	do.....	.00
Flat, tan, 3-4.....	34148	do.....	.64
Tan silk.....	34149	do.....	.04
Shoes—			
Tubular, black, Never Break, 5-4.....	34151	do.....	.05
Tubular, white silk.....	18511	do.....	.09
Porpoise leather, black, 5-4.....	18517	do.....	.09
White, black, and tan, mercerized.....	37481	do.....	.06
Suspenders:			
President.....	33542	do.....	.04
Cycles ball-bearing.....	33946	do.....	.35
French mode.....	33558	do.....	.18
Ties:			
Colored silk scarf.....	32542	Each.....	.20
Windsor scarf.....	18643	do.....	.30
Silk derby.....	18046	do.....	.40
Shield, Tecks, Imperial.....	18625	do.....	.20
Shield, Tecks.....	18639	do.....	.40
Silk bows, batwings, pointed ends.....	36932	do.....	.39
Four-in-hand.....	36936	do.....	.22
Do.....	36937	do.....	.25
Do.....	36938	do.....	.30
Four-in-hand, silk.....	36968	do.....	.44
Do.....	36969	do.....	.48
Do.....	36871	do.....	.50
Umbrellas:			
Do.....	35294	do.....	1.15
Do.....	34989	do.....	1.70
Fox patent.....	37134	do.....	1.40
Do.....	37135	do.....	1.90
Do.....	35299	do.....	1.75
Silk, 26 inches.....	37398	do.....	3.20

Price list No. 5, Panama Railroad commissary department—Continued.

GENTS' FURNISHING—Continued.

	S. No.	Unit.	Price.
Umbrellas—Continued.			
Cotton and silk, 26 inches.....	37385	Each.....	\$3.00
Do.....	37384	do.....	3.25
Cotton, 26 inches.....	37383	do.....	1.10
Do.....	37431	do.....	1.30
Drawers:			
Scrivens.....	36256	do.....	.66
Twill, No. 285.....	35119	do.....	.80
Unbleached, twill, railroad.....	34675	do.....	.23
Balbriggan.....	35118	do.....	.28
White gauze, lot M.....	34811	do.....	.26
Sea Island.....	34681	do.....	.56
Wool, Dr. Jaegers.....	18432	do.....	1.85
Do.....	18431	do.....	2.05
Do.....	18429	do.....	2.05
Do.....	18428	do.....	2.20
Pajamas:			
Flannellette.....	35543	Suit.....	1.15
Do.....	34287	do.....	1.55
Colored gingham.....	33918	do.....	1.10
Robes, night.....	18531	Each.....	.45
Sweaters, colored.....	18923	do.....	1.85
Undershirts:			
Balbriggan.....	35117	do.....	.25
Balbriggan cellular.....	35199	do.....	.25
Gauze, lot M.....	35967	do.....	.22
Khaki, half sleeves.....	18611	do.....	.50
Sea Island.....	34681	do.....	.55
Dr. Jaegers wool—			
Size K 40.....	18174	do.....	2.00
Size K 42.....	18693	do.....	2.30
Half hose:			
No. 500, black cotton, colored circular stripes.....	35617	Pair.....	.11
Black cotton, colored stripes.....	35268	do.....	.14
Black, lace fronts.....	35267	do.....	.23
Black, silk finish, colored stripes, lace fronts.....	34513	do.....	.23
Plain black cotton.....	36411	do.....	.13
Black lisle.....	36398	do.....	.23
Plain black.....	36399	do.....	.32
Fancy.....	33539	do.....	.25
Plain black.....	36192	do.....	.20
Cotton, fancy seamless.....	35773	do.....	.16
Black and white, No. 444.....	37149	do.....	.14
Tan, No. 8104.....	37151	do.....	.17
Tan, lace, No. 349 M.....	36373	do.....	.29
Black, lace, No. 501.....	36374	do.....	.20
Tan, No. 8104.....	37151	do.....	.17
Black and white, No. 444.....	37149	do.....	.14
No. 2106.....	37327	do.....	.18
Merc, lisle.....	37391	do.....	.21
Tan and black, No. B300.....	37482	do.....	.25

WOOLEN GOODS.

Blankets:			
Brown, 10x4.....	35946	Each.....	\$0.64
Blue, 10x4.....	35947	do.....	.93
White, 10x4.....	33289	do.....	1.95
White, double.....	18317	Pair.....	4.00
Do.....	18313	do.....	5.70
Cloth:			
Black Italian, 54-inch.....	18334	Yard.....	1.30
Italian, common.....		do.....	.40
Horsehair, 11-inch.....	32397	do.....	.22
Flannel:			
Cream, 22-inch.....	18428	do.....	.28
Striped wool, tennis, 28-inch.....	37412	do.....	.89
Cream wool.....	37411	do.....	.36
Shawls:			
Lap wool.....	18727	Each.....	2.50
Black cashmere.....	18628	do.....	.45
Tweeds:			
6x4.....	32858	do.....	2.50
6x4.....	32593	do.....	2.55
6x4.....	18816	do.....	2.60
6x4.....	18818	do.....	2.60
6x4.....	32577	do.....	2.70

Price list No. 5, Panama Railroad commissary department—Continued.

COTTON GOODS.

	S. No.	Unit.	Price.
Bedspreads	35622	Each	\$1.20
Bedspreads, small	36515	do	1.00
Bedspreads	33656	do	1.25
Blankets, gray:			
Silvan, single, 10x4	34833	do	.45
Signal, single, 8x4	35379	do	.35
Braid, cream imperial hercules	33747	Bunch	.03
Calico:			
White, Fruit of the Loom, 35-inch	35175	do	.19
Oakland, 35-inch	18415	do	.09
Arcadia	34923	do	.15
Canvas, tailors:			
27-inch	32394	do	.14
27-inch	32396	do	.16
Cases, pillow	34688	Each	.23
Crash:			
Striped union, 32-inch	35951	Yard	.21
Plain, 36 inches	36183	do	.10
Drilling:			
Manton, Pepperel Mills, 27-inch	18427	do	.09
Dwight Co., 27 inches	18421	do	.09
Duck, bleached	37419	do	.14
Quilts, white			
Honeycombed and fringed	18129	Each	1.00
Honeycombed, Royal	33656	do	1.25
Marcella	18131	do	2.50
Sheets:			
Salem—			
54x90	34844		.85
54x90	33228		.75
72x90	34082		.85
Utica, 72x90	34687		1.00
Sheeting, Chicora Brown	37304	Yard	.10
Silvesta, black, brown, grey, and striped, 38-inch	32482	do	.09
Ticking, bed	37379	do	.17
Towelling:			
Crash 17-inch	34125	do	.09
Check, 17-inch	34126	do	.09
Towels:			
Kitchen, No. 32		Each	.20
Hand, No. 110		do	.20
Brown Turkish	34535	do	.09
Do	34473	do	.85
Do	36446	do	.24
Do	35242	do	.30
White Turkish	34674	do	.13
Do	34967	do	.30
Do	34815	do	.16
Do	36445	do	.41
Do	35234	do	.30

LINEN GOODS.

Cases, pillow	33376	Each	\$0.52
Cloth:			
Basin	33375	Yards	.17
Kitchen	33746	do	.17
Table, damask—			
8x10	18361	do	2.75
8x12	18871	do	3.20
10x12	18364	do	3.25
8x14	18363	do	3.40
Fine	33382	do	10.90
Do	33379	do	12.70
Do	33381	do	16.50
Covers, table, colored damask:			
8x4	18360	do	.43
12x4	18371	do	.67
G & M, 8x4	18177	do	.67
G & M, 12x4	18178	do	.96
Drill, brown linen B D 74, 25-inch	37141	do	.24
Dofies:			
White damask, 11 x 11	18425	Each	.14
Damask, red, blue check—			
15 x 15	18872	do	.14
14 x 14	18878	do	.14

Price list No. 5, Panama Railroad commissary department—Continued.

LINEN GOODS—Continued.

	S. No.	Unit.	Price.
Linen, striped rough S. R.:			
215 W.....	37142	Yards.....	\$0. 18
215 B.....	37143	.....do.....	. 18
Napkins, damask, 5-8.....	34795	Each.....	. 23
Sheets, bed:			
72 x 90.....	33741	Pair.....	4. 00
72 x 90.....	33742	.....do.....	5. 00
Tabling, linen damask:			
60-inch.....	33954	Yards.....	. 50
65-inch.....	33945	.....do.....	. 55
65-inch.....	32388	.....do.....	. 55

LADIES' DRESS GOODS.

Antrim lawn.....	36511	Yds.....	\$0. 05½
Chiffon voile, assorted colors.....	36512	.....do.....	. 20
Corduroys, No. 287.....	37398	.....do.....	. 09
Columbia greys.....	46499	.....do.....	. 07½
Careme.....	36813	.....do.....	. 16½
Flannelette, mercerized striped, 27-inch.....	37397	.....do.....	. 12
Linenette for lining.....		.....do.....	. 06
Linen batiste.....	36437	.....do.....	. 080
Linen duck, 25-inch.....		.....do.....	. 37
Niagara checks and balls.....	36812	.....do.....	. 00
Print, shirting, American.....	36248	.....do.....	. 06
Picardie.....	36513	.....do.....	. 02½
Silk, black:			
Merve, 22-inch.....	32494	.....do.....	. 65
Surah, 20-inch.....	32495	.....do.....	. 40
Silk, thistle.....	36514	.....do.....	. 16½
Shepherd checks, 39-inch.....	37396	.....do.....	. 15
Tafetas, No. 910, 27-inch.....	37395	.....do.....	. 19
Washington chambray.....	36811	.....do.....	. 07
Zephyrs, fancy, 27-inch, assorted colors.....	37394	.....do.....	. 16
Do.....	37393	.....do.....	. 18
Do.....	37394	.....do.....	. 14

NOTIONS.

Atomizers.....	33175	Each.....	\$0. 60
Bags, ladies' hand.....	18325	.....do.....	1. 70
Do.....	18326	.....do.....	2. 25
Belts, ladies' leather.....	33616	.....do.....	. 30
Bottles, hot-water, with fountain syringe.....	37437	.....do.....	1. 20
Balls, camphor.....		Box.....	. 06
Combs:			
No. 2, 7½ inch.....	36822	Each.....	. 22
Ladies—			
No. 192.....	36824	.....do.....	. 45
No. 203.....	36825	.....do.....	. 40
No. 1105.....	36826	.....do.....	. 36
Circular shell, No. 100.....	18338	.....do.....	. 09
Side, No. 152.....	18339	Pair.....	. 14
Cards, playing, "Bicycle".....	37452	Package.....	. 15
Chains, key.....	11135	Each.....	. 12
Garters, ladies', Cleopatra.....	18184	.....do.....	. 09
Garters, trousers.....	32368	.....do.....	. 06
Hampers, wicker:			
Fine—			
Small.....	33879	.....do.....	4. 20
Medium.....	33873	.....do.....	6. 70
Large.....	33874	.....do.....	9. 20
Ordinary—			
Large.....	33693	.....do.....	2. 70
Medium.....	33693	.....do.....	2. 10
Small.....	33693	.....do.....	1. 50
Holders, parcel.....	18226	.....do.....	. 20
Do.....	18496	.....do.....	. 10
Inhaler, menthol.....	33632	.....do.....	. 09
Needles, sewing:			
Lion brand.....	18881	Per M.....	. 75
No. 175.....	36831	.....do.....	. 22
Pipes:			
No. 211.....	37349	.....do.....	. 22
No. D640.....	37271	.....do.....	. 20

Price list No. 5, Panama Railroad commissary department—Continued.

NOTIONS—Continued.

	S. No.	Unit.	Price.
Pipes—Continued.			
Cob, c39.....	37253	Per M.....	\$0.05
Cob, c73.....	37254	do.....	.10
Cob, c76.....	37255	do.....	.10
Pouches, tobacco, rubber.....	34355	do.....	.18
Supporters:			
Hose, ladies'.....	18539	Pair.....	.27
No. 3.....	37417	do.....	.40
Thread:			
Cotton.....	34489	Reel.....	.04
Cotton, King.....	18397	do.....	.02

TOILET ARTICLES.

Bay rum.....	37168	Bottle.....	\$0.25
Brilliantine, 2 ounces.....	33678	do.....	.23
Brushes, tooth.....	33628	Each.....	.19
Blanco:			
Dressing for shoes.....	37375	Tin.....	.17
Do.....	34637	do.....	.19
Shaving, Arrow.....	35139	do.....	.28
Shaving, No. 151.....	36828	do.....	.78
Cloth.....	34111	do.....	.25
Cloth, rosewood back.....	33999	do.....	.42
Cloth, ebony back.....	33139	do.....	.70
Hair, rosewood back.....	23626	do.....	.42
Hair, ebony back, keep clean.....	34318	do.....	.47
Do.....	33925	do.....	.42
Cases, gent's toilet.....	18162	do.....	4.15
Daubers, shoe.....		do.....	.03
Extract, Pond's.....	34255	Bottle.....	.23
Koameo (face cream).....	18255	Pot.....	.38
Listerine:			
14 ounces.....	31234	Bottle.....	.65
7 ounces.....	31552	do.....	.33
3 ounces.....	36441	do.....	.17
Ointment, Skin Success.....	18688	Tin.....	.19
Oil edge, Torrey's.....	18212	do.....	.09
Powder:			
Talcum, refined.....	18192	do.....	.11
Violet, Mennen's.....	18889	do.....	.14
Borated Talcum, Mennen's.....	18188	do.....	.14
Dental, Lyon's.....	37308	Package.....	.19
Dental, Colgate's.....	37297	Tin.....	.27
Toilet—			
Dactyls.....	37301	Package.....	.16
Violet.....	37299	do.....	.16
Cashmere.....	37298	do.....	.16
Paste, tooth, Euthymol.....	35749	Tube.....	.16
Perfumery:			
Colgate's toilet water, 1 pint.....	35638	Bottle.....	1.80
Colgate's Especiosa, 5 ounces.....	33675	Bottle.....	.80
Colgate's toilet water, 5 ounces.....	36124	do.....	.50
Eau de Cologne.....	33673	do.....	1.20
Colgate's—			
2 ounces.....	35636	do.....	.60
1 ounce.....	35635	do.....	.40
3/4 ounces.....	37286	do.....	.94
Polish, shoe:			
Whittemore's Russet Star.....	37125	do.....	.09
Baby elite, black.....	33719	do.....	.09
Quick White.....	36191	do.....	.09
Gilt edge black.....	26189	do.....	.09
Razors:			
Safety—Gillette.....	34547	Each.....	5.00
No. 101.....	34548	do.....	1.90
Razor blades, Gillette.....	37115	Package.....	.50
Razorine.....	24324	Tube.....	.15
Rubfoam, tooth wash.....	34555	Bottle.....	.30
Strops:			
Razor—cushion.....	24549	Each.....	.35
Razor.....	37479	do.....	.55
Sosodont, tooth wash.....	35491	Bottle.....	.19
Sticks, shaving, Pear's.....	34185	do.....	.19
Soaps:			
Pear's Transparent Glycerine.....	35576	Cake.....	.11
Pear's unscented.....	35574	do.....	.09

Price list No. 5, Panama Railroad commissary department—Continued.

TOILET ARTICLES—Continued.

	S. No.	Unit.	Price.
Soaps—Continued.			
Turkish Bath.....	36964	Cake.....	\$0.04
Pear's wash balls.....	34184	do.....	.19
Cuticura.....	36493	do.....	.25
Packer's Tar.....	34585	do.....	.17
Cashmere Bouquet—			
Large.....	33681	do.....	.19
Small.....	33187	do.....	.10
Tonic, hair, rum and quinine, 3 ounces.....	33677	Bottle.....	.23
Vaseline, white.....	37305	Tin.....	.20
Witch hazel.....	34254	do.....	.09
Water, Florida.....	36135	do.....	.31
Water, Florida, 8 ounces.....	36496	do.....	.25

HOUSE FURNISHING.

	S. No.	Unit.	Price.
Beds, iron:			
Single.....	37321	Each.....	\$4.00
Double.....	35299	do.....	4.00
Buffets:	31551	do.....	18.00
Cabinets, wicker.....	33882	do.....	21.00
Chests, medicine, oak.....	31358	do.....	4.90
Chiffoniers, oak.....	34658	do.....	15.00
Cribs, child's.....	33875	do.....	16.80
Couches, wicker.....	33885	do.....	20.00
Couches, Morris, oak.....	31451	do.....	41.25
Chairs:			
Steamer, extension.....	31267	do.....	3.50
Cane-seat, oak, arm.....	31156	do.....	2.50
Golden oak, arm.....	35929	do.....	2.50
Revolving.....	34675	do.....	5.82
Wicker.....	31151	do.....	3.80
Morris.....	31148	do.....	15.00
Child's high.....	33886	do.....	4.80
Wicker reclining.....	33883	do.....	42.00
Cane-seat.....	35926	do.....	3.20
Straight.....	36352	do.....	5.00
Arm, golden oak.....	35929	do.....	4.57
Reed, 6844c.....	36346	do.....	14.25
Quartered, golden oak, cane-seat.....	37363	do.....	2.00
No. 6045a.....	36356	do.....	7.70
No. 6849a.....	36362	do.....	10.35
No. 6830a.....	36355	do.....	10.00
Dressers:			
Square.....		do.....	18.00
Square, oval drawers, square front.....		do.....	22.00
Oval front.....		do.....	40.00
Curved front.....		do.....	61.50
Quartered, golden oak.....	37362	do.....	29.50
Desks, standing.....		do.....	23.50
Lounges, wicker.....	35887	do.....	30.50
Mattresses:			
Hair, double.....	34732	do.....	15.00
Hair, single.....	32468	do.....	10.00
Fiber, double.....	34918	do.....	6.00
Fiber, single.....	34932	do.....	4.70
For child's crib.....	33876	do.....	13.20
Mirrors:			
30 x 20 inches.....	31453	do.....	4.80
24 x 20.....		do.....	2.90
Rockers:			
Porch.....	31149	do.....	4.80
Wicker, small.....	31152	do.....	3.60
Golden oak.....	35932	do.....	5.10
Maple.....	36344	do.....	2.70
Do.....	36345	do.....	3.00
G. O.....	36347	do.....	4.35
Do.....	36348	do.....	7.00
Do.....	36349	do.....	6.00
No. 6821b.....	36351	do.....	7.35
No. 6820b.....	36353	do.....	6.70
No. 6830b.....	36354	do.....	10.35
Quartered, golden oak, cane seat.....	37364	do.....	3.00
Springs:			
Single beds.....	34289	do.....	2.00
Double.....	37322	do.....	2.00
Single, Superior.....		do.....	4.50
Double, Superior.....		do.....	5.00

Price list No. 5, Panama Railroad commissary department—Continued.

HOUSE FURNISHING—Continued.

	S. No.	Unit.	Price.
Sideboards:			
Plain front.....		Each.....	\$20.00
Carved front.....		do.....	20.00
Sofas, 6830 F.....	36365	do.....	18.00
Stoves, wood and coal:			
No. 9.....	35662	do.....	26.00
No. 8.....	35661	do.....	18.00
No. 7.....	35659	do.....	15.00
Tables:			
Sewing, folding.....	31154	do.....	3.00
Oak, square.....	31252	do.....	3.00
Extension, square and round.....	31273	do.....	18.00
Drop leaf.....	31272	do.....	3.60
Combination, pine.....	31275	do.....	3.00
Wicker round.....		do.....	11.60
Golden oak.....	35635	do.....	3.20
Do.....	35636	do.....	7.44
Maple.....	35634	do.....	2.76
Washstands:			
Square front, oak.....		do.....	18.00
Curved front, oak.....		do.....	18.00
Pine, double.....	31314	do.....	2.60
Pine, single.....	31256	do.....	1.29
Washstands:	37372	do.....	5.65
Wardrobes:			
Mahogany—			
Single.....	36517	do.....	56.00
Double.....	36518	do.....	86.67
Single, oak.....	35965	do.....	18.90
Double, oak with glass doors.....		do.....	53.10

UPHOLSTERY, CURTAINS, ETC.

Bunting:			
Green and yellow.....	18317	Yard.....	\$0.20
Stars and stripes.....		do.....	.06
Canopies, mosquito:			
Fine.....	37458	Each.....	9.15
Gauze.....	34891	do.....	1.45
Carpets:			
Axminster, 6 feet x 9 feet.....	36321	do.....	7.60
Axminster, 8 feet x 10 feet.....	36315	do.....	14.00
8 feet 3 inches x 10 feet.....	36316	do.....	15.00
9 feet x 12 feet.....	36317	do.....	16.50
10 feet x 10 feet.....	36318	do.....	17.00
12 feet x 15 feet.....	36319	do.....	18.00
Carpet, ingrain.....	36322	Yard.....	.50
Do.....	36323	do.....	.58
Do.....	36324	do.....	.70
Covers, table chenille:			
Size 6-4.....	18345	Each.....	1.15
Size 8-4.....	18344	do.....	1.70
Size 10-4.....	18343	do.....	2.75
Size 12-4.....	18342	do.....	3.75
Cloth:			
Awning, unbleached, 72 inches.....	35711	Yard.....	.50
Oil, brown, 54-inch.....	18386	do.....	.43
Comfortables:			
71 x 78 inches.....	35748	Each.....	1.60
72 x 78 inches.....	35747	do.....	2.00
Curtains:			
White frilled muslin—			
2½ yards.....	18382	Pair.....	.47
3 yards.....	18389	do.....	.85
Lace.....	18378	do.....	1.40
3 yards.....	18376	do.....	2.05
Do.....	18374	do.....	2.05
Flags:			
English—			
1 foot.....	18459	Each.....	.02
3 feet.....	18457	do.....	.09
4 x 6 feet.....	18456	do.....	3.75
5 x 8 feet.....	18455	do.....	5.35
French—			
1 foot.....	18474	do.....	.02
3 feet.....	18457	do.....	.09
4 x 6 feet.....	18469	do.....	2.00
5 x 8 feet.....	18468	do.....	3.10

Price list No. 5, Panama Railroad commissary department—Continued.

UPHOLSTERY, CURTAINS, ETC.—Continued.

	S. No.	Unit.	Price.
Flags—Continued.			
Panama—			
1 foot.....	18465	Each.....	\$0.10
3 feet.....	18467	do.....	.09
4 x 6 feet.....	18464	do.....	1.80
5 x 8 feet.....	18463	do.....	1.90
6 x 10 feet.....	18462	do.....	2.60
8 x 12 feet.....	18461	do.....	3.50
U. S. A.—			
2 feet.....	18451	do.....	.09
4 x 6 feet.....	18439	do.....	.75
6 x 10 feet.....	18445	do.....	6.25
8 x 12 feet.....	18441	do.....	3.00
8 x 15 feet.....	18452	do.....	3.60
Hammocks:			
Colored cord.....	31122	do.....	2.10
Brown canvas.....	18463	do.....	1.85
Matting, Japanese, 36-inch.....	33835	Yard.....	.28
Pillows:			
Hair.....	34832	do.....	1.55
Feather.....	33451	do.....	1.85
Robes, table, fine plush.....		do.....	6.50
Screens, bamboo, porch.....	18684	do.....	1.10

UTENSILS.

Baskets, knife, wicker.....	34612	Each.....	\$0.90
Boxes:			
Spice, japanned.....	25116	do.....	.62
Cake, japanned.....	25364	do.....	.38
Sugar.....	25439	do.....	.38
Flour.....	25438	do.....	.38
Beaters, egg:			
Wire.....	34833	do.....	.07
Dover.....	34334	do.....	.14
Broilers, hotel, resinned No. 23.....	36986	do.....	.33
Choppers, food:			
No. 1.....	34369	do.....	1.20
No. 2.....	34371	do.....	1.40
No. 3.....	34372	do.....	1.80
Cleavers:			
Meat.....	34522	do.....	.33
Butchers' (large).....	34665	do.....	1.05
Forks:			
Kitchen.....	34524	do.....	.11
Do.....	34527	do.....	.16
Grates, cylinder No. 35.....	36770	do.....	.05
Griddles, cake, iron.....	34593	do.....	.85
Do.....	34594	do.....	.55
Pans:			
Muffin, tin, 12 holes.....	36924	do.....	.18
Bread.....	25442	do.....	.60
Dairy tin.....	32999	do.....	.17
Frying.....	33712	do.....	.62
Poachers, egg.....	34374	do.....	.15
Pins, rolling:			
Hotel size.....	32897	do.....	.43
Family size.....	36821	do.....	.10
Pins, clothes.....	35855	Dozen.....	.02
Sieves.....	11694	do.....	.12
Do.....	11695	do.....	.14
Slicers, egg.....	32785	Each.....	.38
Spoons:			
Table, tin.....	35664	do.....	.03
Tea, tin.....	35665	do.....	.02
dessert, tin.....	35666	do.....	.02
Galvanized, kitchen, 19-inch.....	33485	do.....	.12
Galvanized, kitchen, 16-inch.....	33486	do.....	.11
Wooden.....	25786	do.....	.08
Squeezers, lemon.....	32886	do.....	.33
Strainers:			
Coffee.....	36784	do.....	.06
Bowl.....	36785	do.....	.03
Extension, tin-rimmed.....	36786	do.....	.10
Tins, tart.....	35544	do.....	.01
Trays, crumb, and brushes.....	34516	do.....	.31
Turners, cake.....	32784	do.....	.38
Toasters, Ideal.....	15283	do.....	.42
Do.....	15285	do.....	.30

Price list No. 5, Panama Railroad commissary department—Continued.

CHINA AND EARTHENWARE.

	S. No.	Unit.	Price.
Bottles, water, large.....	12516	Each.....	\$0.55
Basins, wash.....	35632	do.....	.50
Do.....	25153	do.....	.45
Bakers:			
Vegetable—			
6-inch.....	36222	do.....	.12
7-inch.....	36221	do.....	.18
8-inch.....	36219	do.....	.28
9-inch.....	36218	do.....	.30
10-inch.....	36217	do.....	.37
4-inch.....	36216	do.....	.09
Oval—			
6-inch.....	35813	do.....	.12
4-inch.....	36215	do.....	.09
3-inch.....	35815	do.....	.09
Bowls:			
Soup.....	36232	do.....	.10
Do.....	36231	do.....	.12
Do.....	35817	do.....	.09
Low-shaped, white.....	36387	do.....	.05
Do.....	36388	do.....	.04
Boats, sauce.....	35749	do.....	.20
Chambers.....	25188	do.....	.35
Do.....	25189	do.....	.45
Do.....	33124	do.....	.80
Chips, butter.....	35816	do.....	.03
Cups and saucers.....	36377	Set.....	.06
Cups, egg, white.....	36362	Each.....	.04
Candlesticks.....	25168	do.....	.50
Dishes:			
Soap.....	31308	do.....	.19
Do.....	36229	do.....	.38
Do.....	33913	do.....	.43
Vegetable, covered—			
8-inch.....	35792	do.....	.80
9-inch.....	35787	do.....	.65
Vegetable—			
4-inch.....	36236	do.....	.11
8-inch.....	31340	do.....	.19
7-inch, covered, with division.....	35784	do.....	.79
6-inch, covered, with division.....	36227	do.....	.68
Meat—			
12x16.....	25227	do.....	.48
19x12.....	35217	do.....	1.00
16x10.....	25219	do.....	.43
5-inch.....	36215	do.....	.09
4-inch.....	36238	do.....	.11
Sauce, white.....	36383	do.....	.15
Do.....	36384	do.....	.10
Oval—			
Flat, white.....	36385	do.....	.04
Deep, white.....	36386	do.....	.04
Jugs, cream:			
No. 103b, size No. 7.....	37237	do.....	.18
No. 103b, size No. 8.....	37238	do.....	.20
No. 103b, size No. 9.....	37239	do.....	.20
Mugs, beer.....	25363	do.....	.19
Plates:			
White, with colored bands.....	36381	do.....	.05
Dessert, 7-inch.....	36214	do.....	.09
Soup, 7-inch.....		do.....	.06
Dinner.....		do.....	.09
Breakfast, 7-inch.....	35782	do.....	.09
Soup, white.....	36378	do.....	.04
Flat, white.....	36379	do.....	.04
Pitchers:			
Water, 6 quarts.....	35559	do.....	.47
Milk, 2 quarts.....	35794	do.....	.30
Milk, 1 pint.....	35793	do.....	.10
Cream.....	34544	do.....	.11
Pots, tea:			
Large.....	35795	do.....	.40
Pear-shaped, white.....	36391	do.....	.20
Do.....	36392	do.....	.15
Sets:			
Toilet, colored, 12 pieces.....	33486	Set.....	6.50
Tea, 15 pieces.....	35326	do.....	1.20

Price list No. 5, Panama Railroad commissary department—Continued.

CHINA AND EARTHENWARE—Continued.

	S. No.	Unit.	Price.
Sets—Continued.			
Dinner—			
112 pieces.....	31323	Set.....	\$20.00
130 pieces.....	36147	do.....	29.60
130 pieces.....	36148	do.....	27.10
Shells, fruit.....	25774	Each.....	.20
Stands, fruit.....	25532	do.....	.84
Saucers, fruit.....	35817	do.....	.05
Scallops:			
9-inch.....	36049	do.....	.30
10-inch.....	36048	do.....	.40
8-inch.....	36051	do.....	.22
7-inch.....	36052	do.....	.15
Shells, pickle.....	12741	do.....	.32
Tureens:			
Soup—			
Plain.....	36055	do.....	1.65
No. 85b, size No. 20.....	37229	do.....	.58
No. 85b, size No. 20.....	37231	do.....	.63
Sauce, plain.....	36039	do.....	.32
Soup.....	31324	do.....	1.05
Do.....	25557	do.....	1.00
9-inch.....	25787	do.....	1.50
10-inch.....	36225	do.....	1.50
9-inch.....	34548	do.....	1.45
Sauce.....	35786	do.....	.30

GLASSWARE.

Bowls:			
Sugar.....	34835	Each.....	\$0.11
Ice.....	33123	do.....	.88
Punch.....	25174	do.....	3.00
Bottles:			
Vinegar.....	35409	do.....	.14
Water.....	32972	do.....	.27
Oil.....	35498	do.....	.14
Do.....	37464	do.....	.10
Baskets, fruit, colored.....	25122	do.....	.28
Cellars, salt, individual.....	34311	do.....	.02
Dishes:			
Celery.....	25246	do.....	.09
Do.....	25243	do.....	.15
Glasses:			
Champagne.....	34916	do.....	.17
Wine.....	34915	do.....	.14
Claret.....	25297	do.....	.15
Whisky.....	34668	do.....	.07
Drinking.....	34262	do.....	.06
Do.....	35752	do.....	.10
Jugs, sirup.....	34839	do.....	.15
Pitchers:			
Water, small.....	35329	do.....	.10
Cream.....	34212	do.....	.06
Saucers, ice cream.....	25338	do.....	.08
Shakers, salt and pepper.....	31288	do.....	.04
Tumblers, footed:			
Small.....	35152	do.....	.07
½ pint.....	33241	do.....	.09

LAMP WARE.

Chimneys:			
For Juno table lamps.....	31551	Each.....	\$0.14
For Imperial student lamps.....	32841	do.....	.08
For Berlin student lamps.....	32842	do.....	.06
Sun.....	25191	do.....	.05
Globes for Dietz lanterns			
Selected.....	25291	do.....	.05
	30544	do.....	.08
Lamps:			
Fancy table.....	25348	do.....	4.80
Bracket.....	34091	do.....	2.00
Table Juno.....	34689	do.....	1.85
Berlin student.....	25234	do.....	2.40
Imperial student.....	31554	do.....	3.75
Bristol hanging, brass.....	25346	do.....	2.15
Lanterns, Dietz monarch.....	36543	do.....	.50

Price list No. 5, Panama Railroad commissary department—Continued.

LAMP WARE—Continued.

	S. No.	Unit.	Price.
Shades:			
For Juno lamps—			
Green.....	32844	Each.....	\$0.60
Yellow.....	32845	.....do.....	1.00
Celadon.....	32846	.....do.....	.75
Opal—			
For Berlin student lamps.....	36443	.....do.....	.12
For Juno lamps.....	36442	.....do.....	.25
Wicks:			
For Rochester lamps.....	25578	.....do.....	.05
For Berlin student lamps.....	25576	.....do.....	.02
For Imperial student lamps.....	25577	.....do.....	.03
For Juno lamps (Miller's).....	25575	.....do.....	.04
Fletcher's.....	25579	.....do.....	.01
For Dietz lanterns.....	25589	Dozen.....	.04

ENAMEL WARE.

Buckets:			
Agate, 15 quarts.....	36174	Each.....	\$0.45
Seamed, covered.....	36767	.....do.....	.14
Do.....	36769	.....do.....	.20
Seamless—			
No. 200.....	36686	.....do.....	.21
No. 300.....	36687	.....do.....	.25
No. 400.....	36688	.....do.....	.31
Boilers, rice:			
Large.....	34398	.....do.....	1.50
Do.....	34397	.....do.....	1.25
8 quarts.....	25143	.....do.....	.80
Blue and white enamel—			
4 quarts.....	25677	.....do.....	.75
6 quarts.....	25132	.....do.....	.95
Agate, 6 quarts.....	32826	.....do.....	.60
No. 60.....	36588	.....do.....	.46
No. 70.....	36589	.....do.....	.51
Boilers:			
Coffee—			
No. 80.....	36591	.....do.....	.62
No. 90.....	36907	.....do.....	.79
Fish—			
18 x 7.....	12543	.....do.....	1.05
21 x 8.....	25135	.....do.....	1.20
Ham—blue and white, 15½ x 11.....	25134	.....do.....	2.25
Milk or rice—			
No. 14.....	36597	.....do.....	.34
No. 16.....	36598	.....do.....	.38
No. 18.....	36599	.....do.....	.41
No. 22.....	36612	.....do.....	.55
No. 24.....	36613	.....do.....	.62
No. 26.....	36614	.....do.....	.79
Bowls:			
Soup, small.....	34228	.....do.....	.07
Mixing—			
No. 12.....	36625	.....do.....	.09
No. 14.....	36626	.....do.....	.10
No. 16.....	36627	.....do.....	.12
Agate.....	34427	.....do.....	.30
Biggins, coffee:			
No. 00.....	36583	.....do.....	.31
No. 010.....	36584	.....do.....	.36
No. 020.....	36585	.....do.....	.41
No. 050.....	36586	.....do.....	.62
Cups, tea:			
Agate.....	25184	.....do.....	.05
Tin.....	34365	.....do.....	.02
Chamber, agate.....	36755	.....do.....	.25
Carriers:			
Water, agate.....	25684	.....do.....	1.00
Dinner, 4 compartments.....	37232	.....do.....	.60
Colanders:			
Soup, agate, large.....	34428	.....do.....	.35
Soup, No. 1104.....	36691	.....do.....	.21
Soup, No. 1407.....	36694	.....do.....	.31
No. 1306.....	36693	.....do.....	.25
No. 1205.....	36692	.....do.....	.23
No. 117A, size No. 10.....	37241	.....do.....	.10
No. 117A, size No. 12.....	37242	.....do.....	.18
No. 117A, size No. 16.....	37243	.....do.....	.23
Hotel, 14-inch.....	37439	.....do.....	.85

Price list No. 5, Panama Railroad commissary department—Continued.

ENAMEL WARE—Continued.

	S. No.	Unit.	Price.
Cuspidors: Agate, seamless, removable tops.....	36749	Each.....	\$0.25
Dishes, soap:			
Agate.....	25264	do.....	.07
Wall.....	36754	do.....	.10
Dippers:			
Windsor.....	36731	do.....	.12
Cocoa, shaped No. 55.....	36771	do.....	.13
Funnels:			
Agate.....	33844	do.....	.23
Seamless—			
No. 101.....	36743	do.....	.14
No. 103.....	36745	do.....	.17
No. 106.....	36748	do.....	.29
Kettles:			
Milk, large.....	25335	do.....	.59
Milk, small.....	25339	do.....	.35
Tea, large.....	31667	do.....	1.00
Preserving—			
Without cover.....	31418	do.....	.11
Lipped, No. 140.....	36628	do.....	.12
Lipped, No. 220.....	36633	do.....	.21
Lipped, No. 280.....	36636	do.....	.31
Tea—			
No. 5.....	36592	do.....	.41
No. 6.....	36593	do.....	.45
No. 9.....	36596	do.....	.72
No. 3.....	36602	do.....	.32
Berlin—			
No. 02.....	36637	do.....	.21
No. 03.....	36638	do.....	.24
No. 04.....	36639	do.....	.29
No. 10.....	36642	do.....	.51
Ladles:			
Agate.....	31425	do.....	.08
Soup.....	36728	do.....	.09
Soup, deep.....	36729	do.....	.10
Granite, 2 pints.....	37429	do.....	.20
Mugs, beer, agate.....	45363	do.....	.19
Measures, agate:			
Gill.....	36736	do.....	.10
½ pint.....	36737	do.....	.12
1 pint.....	36738	do.....	.15
1 quart.....	36739	do.....	.21
½ gallon.....	36741	do.....	.28
1 gallon.....	36742	do.....	.40
Moulds, cake.....	36721	do.....	.19
Plates:			
Dinner, agate, 9-inch.....	25423	do.....	1.00
Soup, agate—			
9-inch.....	31347	do.....	1.09
10½-inch.....	34425	do.....	.14
Pie, deep.....	36716	do.....	.11
Palls:			
Chamber, No. 2.....	36753	do.....	.62
Dinner.....	36732	do.....	.51
Water—			
No. 110.....	36689	do.....	.44
No. 106.....	36815	do.....	.34
No. 108.....	36816	do.....	.38
Pitchers, water, agate:			
No. 403.....	36711	do.....	.29
No. 404.....	36712	do.....	.33
No. 13.....	36714	do.....	.45
No. 14.....	36715	do.....	.51
Pans:			
Pudding, agate.....	34423	do.....	.20
Pudding, deep—			
No. 17.....	36018	do.....	.11
No. 18.....	36619	do.....	.13
No. 21.....	36623	do.....	.17
No. 22.....	36624	do.....	.21
Baking, agate.....	33599	do.....	.55
Milk, 2 quarts.....	36615	do.....	.10
Milk, 3 quarts.....	36616	do.....	.12
Milk.....	36798	do.....	.19
Sauce—			
Lipped, No. 14.....	36644	do.....	.12
Lipped, No. 20.....	36647	do.....	.18
Lipped, No. 24.....	36649	do.....	.23
Straight, No. 300.....	36665	do.....	.25

Price list No. 5, Panama Railroad commissary department—Continued.

ENAMEL WARE—Continued.

	S. No.	Unit.	Price.
Pans: Sauce—Continued.			
Straight, No. 800.....	36666	Each...	\$0.51
Berlin, No. 02.....	36651	do.....	.21
Berlin, No. 03.....	36652	do.....	.24
Berlin, No. 04.....	36653	do.....	.29
Berlin, No. 08.....	36655	do.....	.41
Stove, oblong—			
No. 13.....	36656	do.....	.31
No. 14.....	36657	do.....	.34
No. 16.....	36659	do.....	.41
Foot, oval, No. 2.....	36752	do.....	.83
Jelly cake, shallow.....	36717	do.....	.10
Mountain cake.....	36719	do.....	.14
Sponge cake.....	36722	do.....	.15
Bread, No. 12.....	36725	do.....	.19
Bread, No. 13.....	36726	do.....	.22
Dish, seamless—			
No. 10.....	36695	do.....	.38
No. 14.....	36696	do.....	.44
No. 17.....	36697	do.....	.51
No. 30.....	36699	do.....	.93
Frying—			
Lipped, No. 6.....	36684	do.....	.28
Lipped, No. 7.....	36685	do.....	.31
Pans:			
Frying—			
Lipped, No. 0.....	36677	do.....	.12
Lipped, No. 1.....	36678	do.....	.14
Lipped, No. 3.....	36681	do.....	.17
Milk—			
5 quarts.....	36617	do.....	.17
No. 1.....	36795	do.....	.09
No. 1½.....	36796	do.....	.09
Milk.....	36794	do.....	.08
Milk, No. 131c, size No. 28.....	37244	do.....	.30
Baking—			
12 x 14.....	34359	do.....	.19
8 x 10.....	34357	do.....	.12
14 x 16.....	34361	do.....	.27
18 x 24.....	34358	do.....	.35
Pudding, deep—			
No. 20.....	36622	do.....	.15
No. 19.....	36621	do.....	.14
Egg, No. 39c, size No. 4.....	37217	do.....	.15
Egg, No. 39c, size No. 3.....	37216	do.....	.15
Stew, deep—			
No. 17d, size No. 32.....	37188	do.....	.75
No. 17d, size No. 16.....	37187	do.....	.20
No. 17d, size No. 14.....	37186	do.....	.16
No. 17d, size No. 12.....	37185	do.....	.13
Frying—			
No. 37c, size No. 22.....	37215	do.....	.16
No. 37c, size No. 20.....	37214	do.....	.13
No. 37c, size No. 18.....	37213	do.....	.12
Lipped, No. 5.....	36683	do.....	.24
Lipped, No. 4.....	36682	do.....	.21
Lipped, No. 2.....	36679	do.....	.15
Dish, seamless, No. 21.....	36698	do.....	.62
Cake and jelly, deep, No. 100.....	36718	do.....	.12
Stove, oblong—			
No. 17.....	36661	do.....	.48
No. 15.....	36658	do.....	.38
Sauce, Berlin, No. 06.....	36654	do.....	.84
Sauce, deep—			
No. 26.....	36656	do.....	.28
No. 24.....	36675	do.....	.24
No. 22.....	36674	do.....	.21
No. 20.....	36673	do.....	.17
No. 18.....	36672	do.....	.15
Sauce, shallow—			
No. 6.....	36671	do.....	.19
No. 5.....	36669	do.....	.15
No. 4.....	36668	do.....	.14
No. 3.....	36667	do.....	.12
Sauce, lipped—			
No. 12.....	36809	do.....	.11
No. 10.....	36808	do.....	.10
No. 22.....	36648	do.....	.21
No. 18.....	36646	do.....	.15
No. 16.....	36645	do.....	.14

Price List No. 5, Panama Railroad commissary department—Continued.

ENAMEL WARE—Continued.

	S. No.	Unit.	Price.
Pans—Continued.			
Sauce, straight—			
No. 100.....	36914	Each	\$0.18
No. 200.....	36917	do.....	.21
Sauce, bellied—			
No. 23c, size No. 20.....	37196	do.....	.22
No. 23c, size No. 18.....	37195	do.....	.17
No. 23c, size No. 14.....	37194	do.....	.12
Pots:			
Coffee—			
No. 094.....	36577	do.....	.24
No. 012.....	36579	do.....	.31
No. 014.....	36581	do.....	.26
No. 015.....	36582	do.....	.43
Sauce, straight—			
No. 018.....	36662	do.....	.25
No. 029.....	36663	do.....	.33
No. 022.....	36664	do.....	.36
Soup stock (hotel size).....	36766	do.....	3.67
Tea—			
No. 011.....	36788	do.....	.28
No. 012.....	36789	do.....	.31
No. 015.....	36791	do.....	.43
No. 09.....	36804	do.....	.24
No. 013.....	36805	do.....	.34
No. 014.....	36790	do.....	.38
Hotel, soup, stock, No. 24.....	36959	do.....	2.93
Sauce, No. 032.....	36916	do.....	.96
Sauce, No. 030.....	36915	do.....	.88
Coffee—			
No. 0134.....	36792	do.....	.34
No. 0114.....	36578	do.....	.28
No. 93c, size No. 10.....	37233	do.....	.48
No. 93c, size No. 12.....	37234	do.....	.55
No. 95m, size No. 10.....	37235	do.....	.30
No. 95m, size No. 12.....	37236	do.....	.33
Stew, bellied, No. 11A, size No. 22.....	37182	do.....	.40
Stew, bellied, No. 11A, size No. 18.....	37181	do.....	.30
Straight—			
No. 5A, size No. 34.....	37175	do.....	1.06
No. 5A, size No. 22.....	37174	do.....	.40
No. 5A, size No. 18.....	37173	do.....	.28
No. 5A, size No. 15.....	37172	do.....	.22
Raisers, bread, 10 quarts.....	25141	do.....	1.00
Skimmers, agate.....	34434	do.....	.09
Scoops, grocer's, agate.....	34429	do.....	.20
Saucers, agate.....	25534	do.....	.04
Sets, wash.....	36393	do.....	2.34
Spittoons, No. 30.....	36751	do.....	.46
Spoons, basting.....	36733	do.....	.08
Sets, toilet.....	37374	Set.....	3.16

HARDWARE.

Awls, ice.....	32889	Each	\$0.12
Brackets, pole.....	25114	Pair.....	.25
Boards, bread.....	25587	Each.....	.23
Brooms:			
Floor, hair.....	25149	do.....	.85
Floor, hair, best.....	32967	do.....	1.25
Window, hair.....	25149	do.....	.37
Corn.....	35233	do.....	.35
Furniture.....	25259	do.....	.65
For plated ware.....	25115	do.....	.25
For plated ware, small.....	25148	do.....	.03
W. C.....	25643	do.....	.46
Warehouse.....	36136	do.....	.39
Beaters, carpet:			
Straw.....	25195	do.....	.09
Wire.....	25678	do.....	.09
Brushes:			
Stove.....	25664	do.....	.13
Counter.....	11516	do.....	.23
Shoe.....	11756	do.....	.25
Scrub, No. 823.....	36827	do.....	.20
Hand scrub, No. 1.....	36823	do.....	.05
Scrub, No. 50.....	36982	do.....	.06
Scrub, No. 60.....	36983	do.....	.10
Scrub, No. 85.....	36984	do.....	.20
Window, round, No. 40.....	36985	do.....	.20

Price list No. 5, Panama Railroad commissary department—Continued.

HARDWARE—Continued.

	S. No.	Unit.	Price.
Buckets:			
Water, galvanized.....	36289	Each.....	\$0.35
Water, No. 71c, size No. 26.....	37226	.....do.....	.60
Water, No. 71c, size No. 207.....	37225	.....do.....	.45
Braizers, coal.....	25147	.....do.....	1.75
Bells, tea.....	12586	.....do.....	.88
Cord, picture.....	25164	Package.....	.20
Corkscrews.....	25166	Each.....	.28
Do.....	32887	.....do.....	.23
Clocks:			
Alarm.....	33361	.....do.....	1.05
Wall, regulator A, large.....	33481	.....do.....	6.00
Cans, oil, dandy.....	32824	.....do.....	.30
Cans, kerosene oil.....	36995	.....do.....	.13
Do.....	36996	.....do.....	.13
Cots, folding, military.....	34451	.....do.....	2.85
Coolers, water:			
2 gallons.....	35393	.....do.....	1.95
3 gallons.....	35394	.....do.....	2.35
Dusters, counter.....	25199	.....do.....	.23
Ends pole.....	25375	Pair.....	.36
Freezers, ice cream:			
1 quart.....	35144	Each.....	1.70
4 quarts.....	31236	.....do.....	3.00
6 quarts.....	31518	.....do.....	3.50
12 quarts.....	35114	.....do.....	6.50
Filters, water:			
3 gallons.....	31228	.....do.....	5.00
4 gallons.....	31227	.....do.....	5.75
6 gallons.....	31229	.....do.....	7.25
9 gallons.....	31231	.....do.....	10.50
Hammers, carpenters:			
No. 1.....	34694	.....do.....	.42
No. 2.....	34995	.....do.....	.33
Hatchets.....	34259	.....do.....	.48
Claw.....	35525	.....do.....	.33
Hooks:			
Brass, cup, 1½ inch.....	35181	Dosen.....	.14
Cupboard.....		.....do.....	.14
Cupboard cup, 1 inch.....	34962	.....do.....	.08
Holders, bath, sponge.....	25661	Each.....	.30
Handles, mop.....	34926	.....do.....	.09
Handles, scrub brush.....	37469	.....do.....	.04
Iron, sad, Enterprise, 3 in set.....	34699	Set.....	1.05
Locks, Yale:			
2 inches.....	34652	Each.....	1.95
2 inches.....	34651	.....do.....	1.05
1½ inches.....	34649	.....do.....	.85
1 inch.....	34648	.....do.....	.70
Mats, cocoa, door:			
Small.....	25352	.....do.....	1.50
Large.....	31727	.....do.....	1.90
Mills, coffee, wooden.....	34519	.....do.....	.23
Mills, coffee.....	37367	.....do.....	.34
No. 360, 6½" x 9".....	37445	.....do.....	.45
Mops, heads.....	25367	.....do.....	.14
Mops and handles, complete.....	34927	.....do.....	.23
Openers, can.....	34692	.....do.....	.14
Oil, furniture.....	34972	.....do.....	.28
Ovens for Perfection stove:			
No. 2.....	34319	.....do.....	2.40
No. 1.....	37169	.....do.....	1.95
Pans:			
Infants' bath.....	25436	.....do.....	2.14
Baking, steel.....	34361	.....do.....	.27
Do.....	34358	.....do.....	.35
Do.....	34357	.....do.....	.12
Do.....	34359	.....do.....	.19
Pails, galvanized:			
10 quarts.....	37274	.....do.....	.18
12 quarts.....	37275	.....do.....	.21
Picks, ice, 8-inch.....	32888	.....do.....	.17
Tooth.....	36756	Box.....	.15
Presses, meat juice.....	25376	Each.....	1.00
Rings:			
Cornice, brass.....	25483	Dosen.....	.23
Brass, pole.....	25584	.....do.....	.40
Rollers, towel, N. P.....	25485	Each.....	.43
Racks:			
Hat and coat.....	36772	.....do.....	.20
Towel, wood.....	25489	.....do.....	.10
Do.....	25485	.....do.....	.45
Do.....	12734	.....do.....	.33

Price list No. 5, Panama Railroad commissary department—Continued.

HARDWARE—Continued.

	S. No.	Unit.	Price.
Saws:			
Mast.....	25492	Each.....	\$1. 10
Carpenters.....	34765	do.....	. 65
Sprinklers, water:			
Galvanized, No. 12.....	25579	do.....	1. 05
Galvanized, No. 8.....	25529	do.....	. 95
Green, No. 12.....	25778	do.....	1. 14
Silicon (polish):			
1/2 pound.....	25497	Box.....	. 09
1 pound.....	25496	do.....	. 53
Stoves:			
Blue flame, perfection—			
2 burners.....	34321	do.....	5. 40
3 burners.....	33492	do.....	7. 30
Coal.....	31243	do.....	1. 80
Wickless, No. 3.....	31145	do.....	4. 50
Blue flame, 1 burner.....	33489	do.....	3. 70
Shredders, ice.....	32999	do.....	. 33
Stools, camp.....	31132	do.....	. 70
Sweepers, carpet.....	25789	do.....	2. 85
Trays, butlers.....	32735	do.....	2. 30
Trunks, 32-inch.....	35127	do.....	6. 15
Wicks for kerosene stove.....	25581	do.....	. 04
Blue-flame stove.....	35529	do.....	. 04
Wringers, clothes.....	25636	do.....	2. 90

SILVER AND ELECTRO PLATED WARE.

Dishes, chafing.....	25211	Each.....	\$4. 60
Do.....	25212	do.....	3. 50
Forks for chafing dishes.....	31285	do.....	1. 20
Knives, butter, N. P.....	35672	do.....	. 25
Mixers, liquor.....	25773	do.....	1. 20
Nut crackers, N. P.....	33306	do.....	. 23
Stands, cruet, N. P.....	25172	do.....	1. 80
Spoons:			
For chafing dish.....	25488	do.....	1. 20
Table.....	35668	do.....	. 38
Dessert.....	35671	do.....	. 27
Watches:			
Silver.....	34127	do.....	32. 00
Gun metal.....	36764	do.....	. 95
Nickel.....	36765	do.....	. 90

CUTLERY.

Carvers, wooden handles.....	31491	Each.....	\$0. 65
Knives and forks:			
Wooden handles.....	35948	Pair.....	. 10
Bone handles.....	35953	do.....	. 25
Do.....	35952	do.....	. 28
Knives:			
Bread.....	25331	Each.....	. 09
Bread (hotel size).....	37454	do.....	. 80
Cook's—			
8-inch.....	25327	do.....	. 28
10-inch.....	25323	do.....	. 47
7-inch.....	25328	do.....	. 19
Butcher's—			
8-inch.....	25617	do.....	. 20
14-inch.....	34596	do.....	. 32
12-inch.....	34597	do.....	. 63
Potato.....	37471	do.....	. 05
Mincing.....	25781	do.....	. 05
Ham.....	25319	do.....	. 40
Pocket—			
No. 237.....	36395	do.....	1. 00
No. 232.....	36394	do.....	. 30
No. 239.....	36387	do.....	. 50
No. 238.....	36396	do.....	. 80
Sheers, ham—Royal.....	25672	do.....	. 65
Steels, butcher's:			
9-inch.....	25486	do.....	. 23
8-inch.....	25489	do.....	. 19

Price list No. 5, Panama Railroad commissary department—Continued.

STATIONERY AND WRITING UTENSILS.

	S. No.	Unit.	Price.
Envelopes, plain white.....	35421	Per 100....	\$0. 20
Erasers, typewriter's.....	18437	Each.....	.03
Ink, Paul's, small jugs.....	33533	.....do.....	.03
Paper, commercial note.....	34638	Ream.....	.84
Fans:			
No. 7.....	33689	Per box.....	.57
No. 25.....	33688	.....do.....	.57
Pencils, Dixon's black.....	18248	Each.....	.02
Protectors, pencil point.....	18943	Per dozen.....	.15
Stands, ink, double.....	25136	Each.....	.25

Y. M. C. A. CLUBHOUSES.

The CHAIRMAN. In addition to the privileges and advantages already mentioned, the Government has constructed and is maintaining the Young Men's Christian Association buildings, is it not?

Colonel GOETHALS. We call those Commission clubhouses, and they are operated by the Young Men's Christian Association. The Commission built the buildings, furnished them, and pays the men who are running the clubhouses.

The CHAIRMAN. And you have also constructed and are maintaining houses for religious worship?

Colonel GOETHALS. Yes, sir. We have at most of these settlements joint church and lodge houses, the lower part being devoted to religious services and the upper part being assigned certain days each week to any lodge that wants to meet there.

Mr. MADDEN. Is there any particular denomination?

Colonel GOETHALS. No, sir. They are assigned to the different denominations.

The CHAIRMAN. Men who belong to fraternal organizations are also provided with lodge rooms?

Colonel GOETHALS. As a general rule, yes; but that is not true throughout the entire Zone, though it applies to most of our settlements.

The CHAIRMAN. How many churches have you?

Colonel GOETHALS. This is the list:

NUMBER OF CHURCHES AND LODGE ROOMS CONSTRUCTED FROM MAY 1, 1904, TO JUNE 30, 1907.

Churches: Ancon, 1.

Churches and lodge rooms combined: Culebra, 1; Gorgona, 1; Cristobal, 1.

Clubhouses: Culebra, 1; Empire, 1; Gorgona, 1; Cristobal, 1.

The CHAIRMAN. So that the Government provides the houses they live in and furnish them and provides the fuel and light and water, and pays all the expenses for religious worship and meetings of fraternal organizations—

Mr. MADDEN. Does it pay the minister?

Colonel GOETHALS. Yes; I think we have 11 ministers on the pay roll. That is under the Sanitary Department.

Mr. MADDEN. What do they do?

Colonel GOETHALS. They are supposed to visit the hospitals and write letters for the sick and look after the spiritual welfare of our employees.

Mr. GARDNER. They do not even take up a collection in the churches?

Colonel GOETHALS. I believe not.

Mr. GILLET. Will the salaries of those appear somewhere?

Colonel GOETHALS. Yes, sir; in the Sanitary Department.

The CHAIRMAN. Stating it, then, in another way, all the comforts and advantages—

Mr. KEIFER. You have not gone into the schools yet—

The CHAIRMAN. All the comforts and advantages which civilization affords and which the people in the States enjoy are furnished here by the Government of the United States, with the exception of the food consumed by the employees and the garments which they wear?

Colonel GOETHALS. And the necessary table linen and bed linen, and things like that. But I do not think we have all the advantages of the States.

The CHAIRMAN. I do not mean the luxuries.

Colonel GOETHALS. I mean all the advantages of civilization.

The CHAIRMAN. But they have no taxes to pay?

Colonel GOETHALS. No, sir; no taxes to pay.

Mr. KEIFER. I would like to have you make a little inquiry about the schools, Mr. Chairman.

BAND.

The CHAIRMAN. Does the Government also furnish amusements for the people down here in the way of music?

Colonel GOETHALS. No. They have subsidized the band, the band that was playing at the Tivoli Hotel yesterday afternoon.

Mr. GILLET. It is a mighty good one.

Colonel GOETHALS. Yes; it is a good one.

The CHAIRMAN. They have only one band?

Colonel GOETHALS. Yes. It is a Commissioned band, and it plays at different settlements every Sunday.

Mr. BURLESON. What about baseball parks?

Colonel GOETHALS. We have furnished the grounds, and there are baseball associations which advance the money. They are stock companies.

Mr. BURLESON. Who cleared the ground?

Colonel GOETHALS. I do not think there was any clearing necessary. The one at Empire was in the open fields, and it did not amount to anything. The one at Gatun was the same way, and the one at Ancon.

Mr. BRICK. We do not pay the expenses?

Colonel GOETHALS. We have nothing to do with the expenses.

Mr. GILLET. To return to the band for a second, Colonel, do you mean by that, that it is the only occupation its members have during the week? Is it a band like the Naval Band or the Marine Band?

Colonel GOETHALS. Oh, no. They are employees doing other work, and we pay them \$20 a month for doing this extra duty with the band. We require them to attend two practices a week and to play

on Sundays, and they get no extra compensation but this \$20. If they fail to attend the practice certain deductions are made.

Mr. GILLET. They are employed elsewhere through the week?

Colonel GOETHALS. Yes, sir. They are employed by the dancing clubs on the Isthmus, and paid by the clubs for that service.

The CHAIRMAN. Each clubhouse has a superintendent and men employed in connection with the clubs.

Colonel GOETHALS. They have a secretary and an assistant secretary.

The CHAIRMAN. And they are paid for by the Government?

Colonel GOETHALS. By the Commission. The additional expense for the boys around the billiard tables and bowling alleys, and things of that kind are paid for out of funds of the Young Men's Christian Association.

The CHAIRMAN. How are those funds accumulated?

Colonel GOETHALS. By dues and by collections made from the soda fountains, bowling alleys, and billiard tables.

The CHAIRMAN. Do they charge for playing billiards at the club-houses?

Colonel GOETHALS. Yes, and for playing pool, and for playing in the bowling alleys.

The CHAIRMAN. Does that apply at the Tivoli Hotel?

Colonel GOETHALS. I do not know about that.

The CHAIRMAN. Now, I want to go into another branch of this subject for just a moment. You have spoken of the compensation and stated the advantages and privileges that are allowed to the monthly men as to quarters, vacations, and so forth. You have, I understand, a number of men who are paid by the hour, have you not?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. What classes of employees are those?

Colonel GOETHALS. Mechanical trades and laborers.

The CHAIRMAN. What privileges are allowed to the hour men that are not allowed to the monthly men, if any?

Colonel GOETHALS. None; but the monthly men have the leave privilege with pay, which the hourly men have not.

The CHAIRMAN. That is the only difference?

Colonel GOETHALS. Yes; and that is due to the fact that the monthly men must work any and all hours that may be required of them without increased compensation, whereas the hourly men get time and a half for all overtime work. That is the case in the States. The monthly man gets leave with pay. The hourly man gets none.

HOLIDAYS.

The CHAIRMAN. I do not think you mentioned anything with reference to holidays. Are the employees allowed pay for holidays?

Colonel GOETHALS. Yes; all hourly employees are allowed pay on certain holidays specified by Congressional act of the United States. That has been extended to the Zone. There are specified days—Washington's Birthday, Decoration Day, the Fourth of July, Labor Day, Thanksgiving Day, Christmas, New Year's Day.

The CHAIRMAN. All the legal holidays they are allowed pay for?

Colonel GOETHALS. Yes; they are allowed a day's pay, and in case they work they get time and a half.

The CHAIRMAN. A man who would work eight hours on a holiday would get twelve hours' pay?

Colonel GOETHALS. Yes, sir.

Mr. KEIFER. Now, when men are taken sick, do they get any pay?

Colonel GOETHALS. They get at the rate of fifteen days for each six months, accumulating not to exceed thirty days in a year.

Mr. KEIFER. That applies to the laborers and all?

Colonel GOETHALS. It applies only to mechanics, monthly men on the gold roll; to the mechanical trades, but not to the laborers.

The CHAIRMAN. Now, in view of all the advantages and privileges that are afforded here, and also in view of the health conditions that prevail on the Zone now, and which have prevailed for some time, and in view of the very large increase of pay which the force here, outside the labor force, receives beyond what the same force receives in the States, if Congress should see fit to reduce the total of your appropriation for salaries, how would you distribute the amount appropriated—by a reduction of salaries, or by a reduction of the number of employees, and continue the present salaries to those whom you would retain?

Colonel GOETHALS. If we are going to do the same amount of work we have got to have the same number. In the case of a reduction I think it would be much better for Congress to provide that the reduction should be made in proportion to the cut in the estimates rather than to leave it to me to discover the way of doing it. If you want to cut down the pay, do it by legislative action. We have got to have a certain number of men to do a certain amount of work. You can not reduce the number.

The CHAIRMAN. I wanted to get your idea as to what the effect would be. Taking into consideration the advantages and privileges which are given to the employees here, if Congress should see fit to reduce, and should think that these salaries ought to be reduced, there is only one of two ways in which it could be done—either to provide specific salaries for each class of employees, and reduce the salaries for each class to such a degree as in the judgment of Congress may seem necessary and wise, or else adopt the other method, which would be simply to reduce the lump sum appropriation which is made for these salaries, leaving the distribution of the appropriation among the employees by a reduction of the salary all along the line to the people employed in the hands of the Canal management, or by reducing the force. Of course, if the force is reduced it would retard very materially the progress of the work, which is a thing Congress does not want to do.

Colonel GOETHALS. You could specify that so much is appropriated, and that salaries must be reduced in proportion.

The CHAIRMAN. Your idea is that if the lump sum appropriation for salaries is reduced 10 per cent, Congress should also provide that the individual salaries making up the estimate should be reduced accordingly? Is that your idea?

Colonel GOETHALS. Yes. But that reduction should be made by the Commission following along certain lines. We ought to cut down the higher-paid men a greater percentage than the lower-paid men. If Congress will indicate that they are going to give us so much, and that it will be a certain percentage of our total estimates, and state that the salaries now paid are excessive and must be made to

conform to those figures, that would be something for us to stand on. There might be some opposition, but we could stand to it. But I doubt if the Commission could undertake it without legislative action.

The CHAIRMAN. Do you believe it is necessary for the Commission to continue giving the employees all the privileges and advantages which they are now receiving?

Colonel GOETHALS. I do not. Personally I think they are getting too much.

Mr. BURLERSON. But, having started, it is difficult to change it.

Colonel GOETHALS. Yes; having started it, I must be supported if it is cut down.

The CHAIRMAN. Have you reason to believe that the Commission could now obtain skilled mechanics and clerical service in the States sufficient to carry on the work to the maximum without giving the advantages and privileges that have heretofore been extended as an inducement to get people to come down here?

Colonel GOETHALS. I think so. I was going to suggest that we have practically limited the extent of our building. We can not go on definitely. We should provide for enough buildings for our present contracts, and then stop, and say that anybody who comes down here after January 1, 1908, will be furnished with bachelor's quarters, but if married, we will not guarantee married quarters. If married quarters are vacant from time to time we could rent them for a nominal sum, or let employees have them for nothing.

The CHAIRMAN. Have you prepared the statement which I requested, Colonel, with regard to the salaries paid for the fiscal years 1906 and 1907?

Colonel GOETHALS. There seems to be some misunderstanding as to how far that is to go.

Mr. GILLET. If Congress thought it wise to act, would you prefer, or would you think it wiser, that Congress should vote a lump sum, leaving it to you to do the cutting? Or do you think it would be better if Congress should classify the employees as they do in other branches of the service, fixing the salaries of each one? Which would you think would be the wiser?

Colonel GOETHALS. I do not like this idea of pinning us down to fixed salaries for each position. I would like to have a lump-sum appropriation for constructing this Canal, so far as I am personally concerned, and have you let me apportion it as I see fit; so much for construction, and so much for government, and so much for sanitation. I can furnish you estimates in either way. But when you come to spend that money, we are running against snags all the time. If you frame the bill so as to specify positions and pay for positions, we will be hampered still more. Congress could fix salaries by providing that pay shall be a certain percentage over pay for similar work in the United States.

Mr. BURLERSON. If we appropriate a lump sum the responsibility will be on you.

Colonel GOETHALS. You can state that this appropriation is based on a reduction, say, of 10, 20, or 40 per cent of pay. Then we could cut it down. It would be a law then that would require a cut of salaries.

Mr. GRAFF. You would not want to make a horizontal cut on all?

Colonel GOETHALS. No. Some are paid now out of all proportion. I think under the present conditions the steam-shovel men are paid altogether too much. That has formed the basis along this line. Two hundred and ten dollars a month is what the steam-shovel man gets, and the other employees have got to have the steam-shovel man's scale.

Mr. GARDNER. Suppose they struck, or quit work?

Colonel GOETHALS. All right; suppose they do. We will get additional men. We had that trouble in May. We will have some trouble so long as these steam-shovel men are on the Isthmus. There may be men who will go, but we will not have any strikes.

NUMBER OF BUILDINGS AND THEIR COST.

Mr. MADDEN. What is the number of buildings, and what is their aggregate cost?

Colonel GOETHALS. Here is a statement of that:

BUILDING OPERATIONS AND COST.

The 767 new buildings erected by the Building and Construction Division during the last fiscal year brought the total of Commission buildings on hand to 2,919 of all classes. Of the 2,265 buildings received from the French Canal Company, 252 were repaired during the year, and 113 were destroyed. There are remaining 678 of these buildings yet to be repaired, remodeled, or demolished. The average force employed by the division was 3,570 men, and in the year's work there was spent \$4,357,578.57. The largest single item was for quarters for gold employees, amounting to \$1,432,415.51. The next largest item was for the construction of silver employees' quarters, \$482,502.88. For the construction of buildings for hospital purposes there was expended \$315,196.57, and for supervision and clerical force, \$193,763.73.

From May 1, 1904 to June 30, 1907, 971 buildings were constructed, at a cost of \$5,479,808.65, and 1,270 buildings were repaired, at a cost of \$1,496,985.95.

The CHAIRMAN. Now, you were speaking about your office. What page is that on?

Colonel GOETHALS. No. 35.

SCHOOLS ON THE ZONE.

Mr. KEIFER. You were going to ask about the schools.

The CHAIRMAN. Oh, yes. In addition to the other items, we want to consider the schools. The schools have been omitted. Have you free schools here on the Zone?

Colonel GOETHALS. Yes; free schools.

Mr. MADDEN. Free books?

Colonel GOETHALS. Free books.

The CHAIRMAN. How many months in a year?

Colonel GOETHALS. Nine months.

Mr. KEIFER. What classes get the benefit of that?

Colonel GOETHALS. All classes of white employees and colored employees.

Mr. KEIFER. That involves the furnishing of teachers and school-houses?

Colonel GOETHALS. Yes.

Mr. BURLESON. And a supervisory force as well?

Colonel GOETHALS. Yes.

Mr. KEIFER. You have a superintendent of schools?

Colonel GOETHALS. Yes, and his office force.

Mr. KEIFER. Do you know the number of schools from memory?

Colonel GOETHALS. No.

The CHAIRMAN. Are they maintained out of appropriations made by Congress or out of the revenues?

Colonel GOETHALS. Out of the revenues. The saloons furnish the greatest amount of funds for that.

The CHAIRMAN. The revenues are collected by the Canal Zone government, and used for the purpose of paying for the schools and the making of internal improvements?

Colonel GOETHALS. Yes.

Mr. GRAFF. Do they have high schools?

Mr. ROGERS. Yes. The Zone revenues also pay the postal service, so far as the postal collections will do so.

Mr. GRAFF. What I wanted to find out is how high a grade they reach.

Colonel GOETHALS. This year they are trying to maintain as much of a high school course as the people demand. Here at Culebra they have the lowest grade of high school course. The idea is to establish a regular high school later, if desired.

Mr. MADDEN. Have you a Board of Education?

Colonel GOETHALS. The Board of Education is the Commission.

Mr. MADDEN. Does the Commission give hearings?

Colonel GOETHALS. When they are required.

SALARIES OTHER THAN SKILLED AND UNSKILLED LABOR.

The CHAIRMAN. Under the third item on page 4 I read:

For pay of members of the Commission and officers and employees on the Isthmus, other than skilled and unskilled labor, including civil engineers, superintendents, instrument men, transit men, level men, rodmen, draftsmen, timekeepers, mechanical and electrical engineers, supervisors, clerks, accountants, stenographers, storekeepers, messengers, office boys, foremen and subforemen, watchmen, wagon masters, stewards, hospital dispensers, internes, nurses, and attendants, including those necessarily and temporarily detailed for duty away from the Isthmus, for the departments of construction and engineering, disbursing, examination of accounts, and labor, quarters, and subsistence.

Your estimate for the next fiscal year is \$3,517,911?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. Your appropriation for the current fiscal year is \$2,772,726.

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. Now, does this increase consist of salaries only, or of additional men and increases of salaries to those now employed?

Colonel GOETHALS. The bulk is increase of force, due to increased work. We are now providing in these estimates for construction forces for the entire line. Heretofore, the work has been preliminary in certain divisions.

The CHAIRMAN. This is for the force contemplated for the next fiscal year?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. Have you prepared the statement we spoke of, showing the salaries paid and the increases proposed in the estimates?

Colonel GOETHALS. Yes, sir. I had it prepared and saw it yesterday, but I do not think it is just what you want.

The CHAIRMAN. Do you know at the present time whether there is any difficulty in securing employees from the States or elsewhere necessary to carry on the work that you are now engaged in?

Colonel GOETHALS. We are having none now. Our demand for men is cut off now. We have practically all the more important positions filled, and our call for men is much smaller than it was three or four months ago.

The CHAIRMAN. Do you still maintain men in European countries who are engaging white labor over there to come here?

Colonel GOETHALS. I thought you were talking about skilled labor. We are still importing unskilled labor. We are having no trouble whatever in getting it.

UNSKILLED LABOR SUPPLY.

Mr. TAYLOR. Speaking of labor, Colonel, how does that vary and change?

Colonel GOETHALS. That changes considerably. I was very much surprised, in preparing the annual report, to find a constant shifting taking place in this labor situation. Mr. Jackson Smith, when he comes up, can give you statistics on that.

Mr. TAYLOR. There is a constant variation in the labor supply, is there not; more than you would have thought?

Colonel GOETHALS. Oh, very much.

Mr. BURLESON. Originally, I understood there was a practical change of force every month, but now only every six months or so.

Colonel GOETHALS (reading):

The skilled labor force is recruited in the United States. Agents of the Commission receive applications for all outside positions, personally examining the individual and looking into his previous service record. This includes trainmen, steam-shovel operators, foremen, and mechanics. Clerks, stenographers, draftsmen, doctors, and nurses are secured through the civil-service registers. The skilled force on June 30, 1906, was approximately 2,500, and on June 30, 1907, actually 4,404. To increase this force 1,904 men and provide for the usual separations, due to sickness, resignations, etc., 3,038 men were brought from the United States during the year.

The unskilled force is brought from the West Indies and Europe. Recruiting agents are located in Barbados and Martinique, and a representative in Paris, France, to keep in touch with European labor conditions and with European emigration. On June 30, 1906, there were on the canal work 500 Europeans and 13,625 West Indians. June 30, 1907, there were 4,317 Europeans and 14,606 West Indians. To maintain this force of laborers and also provide the Panama Railroad force of about 5,000 laborers, 6,899 Europeans and 10,947 West Indians were brought to the Isthmus, an average of nearly 1,500 men per month, to meet the demands of the work for common labor during the year.

The total force of skilled and unskilled laborers of the Isthmian Canal Commission and Panama Railroad on June 30, 1906, was 19,600, and on June 30, 1907, it was 29,446, an increase in the total of 10,000 men. During this period 20,884 men were brought to the Isthmus from the United States, Europe, and the West Indies. The labor problem is still an unsolved one, but the experiments of the past year with a diversity of races and nationalities has improved the efficiency of the force and promises to make the term of service longer. Tropical labor is migratory, and notwithstanding superior wages,

housing, and subsistence, there will always be large periodical changes in the individual force. A regular recruiting organization, changed from one labor center to another, will always be necessary to keep a maximum force available.

In other words, we brought double the number of men from the States in order to get the number we desired—that is, skilled labor from the States. We brought in an average of 1,500 men per month to meet the demand for common labor. Our common labor is practically the same in number, and we have to bring in that number to supply the losses that we sustain.

The CHAIRMAN. Do you know about the average length of time that the common laborers serve here?

Colonel GOETHALS. I think about six months. Then they go back home for a rest and come back again later on.

The CHAIRMAN. In order to get the advantages of free transportation back, to which they are entitled under the contract, as I understand, they must remain here six months?

Colonel GOETHALS. No; we have no such contract with common labor, requiring their repatriation, unless we discharge them. We ship them here and, except for cause, we do not ship them back. We have some contracts with the foreign islands and are obliged to return that labor back at the expiration of six months. For example, we have a definite contract with Barbados.

Mr. KEIFER. I understand there are young men here who went down to South Africa, and we pay them here two or three times as much as they ever got.

Colonel GOETHALS. Yes, sir.

Mr. GILLET. Are you following any particular policy as to what nationalities you bring in for unskilled labor?

Colonel GOETHALS. No; except that we have dropped the Greeks. We did get some Greeks, but have stopped recruiting them because we can not get foremen who speak the language. We are getting West Indians and some Spaniards and some Italians.

The CHAIRMAN. Are you getting any from the south of France?

Colonel GOETHALS. Very few Frenchmen.

The CHAIRMAN. You still maintain the distinction between white and black as to pay roll? You have the two rolls, silver and gold?

Colonel GOETHALS. Yes. We are trying to break that up. In order to secure the monthly payment I have promised the Gallagoes to pay them in gold; this also decreases the amount of silver that is used. It is difficult for the paymasters to pay in both gold and silver, and then in addition to that we prefer our own currency as a matter of sentiment.

Mr. MADDEN. Is there not a provision in the treaty with the Panamanians in which we agreed to pay those people in silver?

Colonel GOETHALS. They are all anxious to get gold, whether they live here or not. I do not know whether there is an agreement with Panama on that subject or not, but I do not think so.

Mr. ROGERS. No; there is not.

Colonel GOETHALS. Here is a statement in the Canal Record. On November 1 there were employed on Canal work 5,775 European laborers, and of this number 5,121 were actually engaged on the work. They were divided as follows [reading]:

	Spaniards.	Italians.	Greeks.	Unclassified.
Cristobal Division.....	509	74	367	20
Gorgona Division.....	1,065	266	70	7
Culebra Division.....	1,908	129		9
Ancon Division.....	838	459	22	13
Total.....	4,340	927	459	49

Mr. GILLET. Which do you suppose the men would prefer, the skilled mechanics, to have their wages reduced a considerable percentage, or have their hours extended?

Colonel GOETHALS. I think they would rather work longer and not have a reduction made.

Mr. GILLET. Do you think that in this climate they could work an hour or two more?

Colonel GOETHALS. I think they can work to advantage in the shops nine hours, and in the field with advantage ten hours.

Mr. GILLET. Why that difference between the shops and the field?

Colonel GOETHALS. It gets dark here early, and you can not see clearly in the morning earlier than seven o'clock, indoors, and they have to have the noon hour, which is deemed essential in this climate by the Sanitary Department.

Mr. GILLET. And outdoors they do not need or require such close observation?

Colonel GOETHALS. No. Now, as to the contract, we are not under contract to provide lights and fuel, and we could charge for those.

Mr. BURLESON. But the difficulty is, that having once commenced a privilege of that kind, it creates more dissatisfaction to withdraw it.

Mr. MADDEN. As a matter of fact, where people have not electric lights they are obliged to buy kerosene, so that they are not getting the advantages that the others are?

Colonel GOETHALS. No; and we hear of it, too.

The CHAIRMAN. Colonel, when you spoke of the different pay rolls you did not mention the amount you were paying for black labor and the amount paid for white labor. Will you state for the purposes of the record just what you are paying—the silver roll and the gold roll?

Colonel GOETHALS. The silver roll includes all common labor, and varies from 13 cents an hour to forty cents an hour, the average for the blacks being 20 cents, and the average for the Europeans being 40 cents.

The CHAIRMAN. For an hour?

Colonel GOETHALS. Yes; in silver.

Mr. BURLESON. For the same character of labor?

Colonel GOETHALS. The whites are better than the colored.

Mr. BURLESON. If the negro does as much work as a white man, you would pay him as much?

Colonel GOETHALS. Yes; if he did, we would; but he does not.

Mr. TAYLOR. It is the same kind of work, but you do not get the same amount from the individual?

Colonel GOETHALS. That is it.

Mr. TAYLOR. It is not the kind or character, but the capacity of the laborer to do the amount of work?

Colonel GOETHALS. Yes.

The CHAIRMAN. The average, as I understand you, is 20 cents for the negro laborer in silver, and 40 cents silver for the Spaniard; or, converted into gold, 10 and 20 cents, respectively?

Colonel GOETHALS. Yes. Then in addition to that, the negro laborer gets, as part of his compensation, subsistence, which the other man does not get.

The CHAIRMAN. The white laborer must pay for his own subsistence, and the negro not?

Colonel GOETHALS. That is it. It was necessary to do that in order that these men might be made physically stronger to do the work.

The CHAIRMAN. What is the maintenance worth?

Colonel GOETHALS. Thirty cents a day.

Mr. GRAFF. Silver or gold?

Colonel GOETHALS. Gold.

Mr. TAYLOR. You find it necessary to give him better food than he would get himself?

Colonel GOETHALS. Yes. If let alone he would start a day's work on a banana.

The CHAIRMAN. So that a white man gets \$1.60, and the negro gets subsistence, which is 30 cents, and \$1.10 wages?

Colonel GOETHALS. Yes.

Mr. GILLET. How many hours do they work?

Colonel GOETHALS. Nine and one-half hours. Those are the labor hours we maintain now.

Mr. KEIFFER. You furnish quarters for all classes?

Colonel GOETHALS. Yes; barracks such as you saw.

The CHAIRMAN. My statement was on the basis of eight hours, \$1.10 and \$1.60?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. And proportionately larger as the hours of employment increase?

Colonel GOETHALS. Yes.

OFFICE OF THE CHAIRMAN AND CHIEF ENGINEER.

The CHAIRMAN. Now, I see that in your office you have two chief clerks and one assistant chief clerk. That is on page 35, in your detailed estimate. How many men have these two chief clerks under them?

Colonel GOETHALS. There are 25 clerks altogether in my office. I have one chief clerk who is chief clerk of the office. Then the other chief clerk is the man who is taking charge of the engineering cost-keeping, and he has 3 men under him. He is employed in the nature of an accountant.

The CHAIRMAN. One chief clerk is receiving a salary of \$3,600 a year. Is he receiving that salary now?

Colonel GOETHALS. He is; yes, sir.

The CHAIRMAN. The other one is receiving \$2,400?

Colonel GOETHALS. Yes.

The CHAIRMAN. Which is the one in charge of your office?

Colonel GOETHALS. Mr. De Putron, the chief clerk.

The CHAIRMAN. And the one that is getting \$2,400 is the one in charge of the Cost-keeping Division?

Colonel GOETHALS. Yes.

The CHAIRMAN. What salaries do the 2 clerks under him receive?

Colonel GOETHALS. One receives \$1,500 and the other \$1,800. That is in the finished, organized force.

The CHAIRMAN. When did the Commission adopt the plan of making the difference in the compensation between different classes of employees \$300? Was it since you came here or before?

Colonel GOETHALS. No; that was before. That was adopted a year ago, or a year and a half ago.

Mr. J. B. BISHOP. That was adopted September 1, 1907.

The CHAIRMAN. You find, from your experience here and your knowledge of the work these men are doing, that there is that much difference in the class and character of the work they are doing when they are promoted from one class to another?

Colonel GOETHALS. That is what we are trying to enforce now, that this jump of \$300 will not be made unless there is a vacancy in the upper grade.

The CHAIRMAN. In all the Executive Departments generally, where the employees are classified, the difference of pay between the classes is only \$200, and the clerical work, I assume, is practically the same.

Colonel GOETHALS. Very much the same all the way through.

The CHAIRMAN. I wanted to find what the reason was that inspired the Commission in making this difference \$300 instead of \$200, as in the Departments.

Colonel GOETHALS. I do not know what caused them to adopt it, but we changed the classification, and we have got the \$300 limit and the \$150 limit, and made the difference \$150. In order to give a man some hope of advancement here in the office organization, I have fixed the salaries. The assistant chief clerk here, who takes the place of the chief clerk when the chief clerk is away, gets a salary of \$2,400. In figuring up the expense in my office I have a limit placed for the position of \$2,700. In other words, I can advance him \$300 without any vacancy in the chief clerk's position. This year I am not going to do it. He will work another year before he gets another advance.

The CHAIRMAN. When he gets the advance he will be doing practically the same work?

Colonel GOETHALS. Yes; but better work, because of his increased experience.

The CHAIRMAN. Will he do any more of it?

Colonel GOETHALS. That man stays here until 8 o'clock in the night, and he is the first man here in the morning. I am usually here myself until 10 or 11 o'clock at night when I am out on the line during the day and I come in late. I am here at the office until I finish up enough paper work to keep them busy all the next day. I start off again next morning and do the same thing the following night.

The CHAIRMAN. Has the Commission considered the plan proposed by the Commission appointed by the President two years ago, to inquire into the classification of the employees in the Executive Departments in Washington, whereby they have divided or proposed to divide the clerical force in the Executive Departments into three classes, and subdivide each class, and whereby the subdivided classes would receive an advance of \$50 within that class until they reached the top, or would receive \$150 at the end more than they received in the beginning of service in that class; and when they jumped from one to another class the increase would be \$200?

Colonel GOETHALS. No; we have not considered that.

The CHAIRMAN. So that a man might have to work a long time before he could get a promotion at all; he might be working alongside of another man under this classification you now have, and under the classification at present in the Executive Departments two men may be working side by side doing different work, but both receiving the same compensation. Now, to afford all the men in each particular class, an incentive to increase their efficiency, it is proposed to make the promotion within each class of \$50.

Colonel GOETHALS. Well, we have not discussed that.

Mr. MADDEN. No person in any branch of the work has any hope of increasing his salary without consulting you?

Colonel GOETHALS. Not without my approval.

Mr. MADDEN. Has that been so always?

Colonel GOETHALS. Yes, sir.

SECRETARIES OF CLUBHOUSES.

The CHAIRMAN. You are paying secretaries of clubhouses \$1,800 a year?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. Do you find it necessary to pay that salary in order to get good men?

Colonel GOETHALS. Miss Beeks informs me that we have the finest secretaries that she has seen anywhere in Y. M. C. A. clubhouses.

Mr. MADDEN. I suppose her opinion was considered of great value?

Colonel GOETHALS. Oh, yes, sir.

The CHAIRMAN. What are the duties generally of secretaries of clubhouses at \$1,500?

Colonel GOETHALS. He is the fellow that I consult if anything goes wrong in the clubhouse.

The CHAIRMAN. What are his duties?

Colonel GOETHALS. He provides entertainment at the various clubhouses, looks after supplies, repairs, etc.

The CHAIRMAN. What supplies do they have?

Colonel GOETHALS. Soda fountains, ice cream, and they look after the billiard and pool tables and bowling alleys.

The CHAIRMAN. They have the proceeds?

Colonel GOETHALS. The proceeds are in the custody of the Disbursing Officer, and they are expended with the approval and upon the recommendation of the General Secretary and an Advisory Board. The Advisory Board consists of the Secretary of the Commission; the Chief Sanitary Officer, Mr. Tubby; Mr. Stuntz, the Auditor, and the General Secretary. That is the board that attends to all of those matters.

The CHAIRMAN. But the revenues go through the hands of the Disbursing Officer as a trust fund, and that board considers applications for expenditures, and the expenditures are made out of this fund without going into the hands of the Commission at all?

Colonel GOETHALS. Yes.

Mr. GILLET. Does that include the \$12 monthly dues?

Colonel GOETHALS. That includes all receipts.

Mr. GILLET. The members do not meet and vote as to what is to be done with that fund?

Colonel GOETHALS. No.

The CHAIRMAN. Are the clubhouses self-sustaining?

Colonel GOETHALS. Not yet. That is what I hope will be the case eventually. I am putting on them all the expenses we can.

Mr. TAYLOR. Do you contemplate adding any more?

Colonel GOETHALS. I am very anxious to build two more, at least; one at Gatun particularly.

Mr. TAYLOR. How many do you think would be the maximum?

Colonel GOETHALS. I think two more would be sufficient; one at Gatun and one at Paraiso.

Mr. KEIFER. How many have you now?

Colonel GOETHALS. Four.

The CHAIRMAN. Have you had sufficient opportunity to observe what the effect is of our maintaining these clubhouses—the effect on the employees?

Colonel GOETHALS. Only from what I can hear. I am a member, but I do not go there very frequently.

The CHAIRMAN. Do you think they are essential?

Colonel GOETHALS. I think they are very necessary for the contentment of the men, and they have had a good effect in reducing the amount of drunkenness among our employees, particularly on Sundays. I think they have paid for themselves. I think that is one thing we ought to go on with.

Mr. GILLETT. Can you put into the record how many members there are in each clubhouse?

Colonel GOETHALS. The total membership October 31 was 1,727, and this membership is about evenly distributed among the four. They are doing a good deal toward eliminating class distinctions among the employees.

The CHAIRMAN. What are the conditions under which a man can become a member?

Colonel GOETHALS. Any man on the gold roll is eligible to membership without any election or anything else than the payment of the necessary dues.

The CHAIRMAN. Any man on the gold roll, no matter where he is working?

Colonel GOETHALS. Yes.

Mr. KEIFER. Are there no others that are eligible?

Colonel GOETHALS. The silver roll is composed of blacks and Gallagoes. Then we have some silver-roll foremen, monthly men, that we do not care to have in.

PRESSMAN AND ASSISTANT PRESSMAN AND TELEPHONE OPERATORS.

The CHAIRMAN. I see in your estimate that you have estimated here for a pressman and assistant pressman.

Colonel GOETHALS. Yes; we have those men employed now, and they are in Panama in connection with lithographic work and printing.

The CHAIRMAN. What do you pay your telephone operators?

Colonel GOETHALS. Sixty dollars a month, I think.

The CHAIRMAN. Are they girls or men?

Colonel GOETHALS. They are girls here, and when we can not get girls we get Jamaicans.

The CHAIRMAN. You pay the same rate for those that we pay in the Executive Departments?

Colonel GOETHALS. Yes. In this case we get them more cheaply because they are girls whose families are already here.

The CHAIRMAN. You say these pressmen are working over at Panama?

Colonel GOETHALS. They work there in connection with the lithographic work.

The CHAIRMAN. They are actually working on the printing press?

Colonel GOETHALS. Yes. I want to transfer that force, including the chief of division, to the Department of Government, and to confine the work to collecting data for the board of arbitration in connection with land questions.

LOCAL TRANSPORTATION, PANAMA RAILROAD.

The CHAIRMAN. At the top of page 36 you have an item here, "Local transportation, Panama Railroad, \$150,000." Please explain what that is.

Colonel GOETHALS. That includes all necessary travel orders. We have a system of passes that we give to employees whose business takes them to different parts of the line—our surveyors, for instance. We have gangs of workmen going from one point to another, and we pay all transportation issued by the Isthmian Canal Commission on the Panama Railroad. This pass per month to Canal employees is paid by the Commission. It is at half the regular rates; that is why we give half rates to families of employees. When I came here I found everybody who had "a pull" with the clerk had free transportation. [Laughter.] If you did not have a pull you would have to pay full fare. So I changed that, and put everybody on the same basis.

Mr. KEIFER. When you send people out on duty, of course the Commission pays?

Colonel GOETHALS. Yes.

TRAVEL ON THE ISTHMUS.

The CHAIRMAN. You have another item here, "Travel on the Isthmus, \$15,000." That is in addition to the \$150,000?

Colonel GOETHALS. That is to reimburse employees traveling on duty on the Isthmus and under competent orders.

The CHAIRMAN. I was wondering why it was not included in the other item.

Colonel GOETHALS. It is because the other item is for transportation paid directly to the Panama Railroad; this item is for reimbursing employees.

EXTRA TRAIN SERVICE.

The CHAIRMAN. I see you have an item here, "Extra train service, \$5,000."

Colonel GOETHALS. Yes. We pay the Panama Railroad \$42 for every extra or special train we run across the Isthmus. As to the transportation of the Congressional party, I told the General Mana-

ger we would not pay the railroad anything for it. [Laughter.] In the case of private parties we sometimes give them a special train. When a foreign minister wants to cross the Isthmus we give him a special train. If the American minister wants to meet some guests on the Isthmus we send him across on a special train and back.

Mr. GILLET. This would provide for a special train every three days.

Colonel GOETHALS. There are times when it is needed. There are times when I telephone for a special and pay \$42 for it. I may want to go to Panama or Colon and can not go in the dirt train or labor train and I get a special and go in.

REDUCTION OF CLERICAL FORCE.

I want to state that in my estimate for my office if you wish to cut out \$16,800 you are at liberty to do so.

Mr. KEIFER. What item is that?

Colonel GOETHALS. That will come under the clerical force. That will not appear under your lump sum. That is the first item you read off, Mr. Chairman. You can just cut out \$16,800. My office expenses are found on pages 35 and 36.

Mr. MADDEN. Does that admit of any increase in your office force?

Colonel GOETHALS. The total salaries I am estimating for amount to \$46,500. I am not paying out all of that sum, so that it will give me somewhat of a flexible system. I have estimated here \$63,000, in these estimates, but by a rearrangement of the office force I cut it down.

The CHAIRMAN. Who arranged the estimate on page 13 under item 5? Who prepared the estimate there?

Colonel GOETHALS. Mr. Tubby.

PURCHASE OF MATERIAL, SUPPLIES, AND EQUIPMENT.

The CHAIRMAN. Now, as to the items on page 14.

Colonel GOETHALS. Everybody has worked on that. That is a summation of everything that we have estimated in detail in latter part of this book. The Washington office did that.

The CHAIRMAN. "For purchase and delivery of material, supplies, and equipment, including cost of inspecting material and of paying traveling expenses incident thereto, whether on the Isthmus or elsewhere," etc., you have estimated for the next fiscal year \$11,752,708?

Colonel GOETHALS. Yes.

The CHAIRMAN. Your appropriation for the current year is \$9,046,937.90?

Colonel GOETHALS. Yes.

The CHAIRMAN. Now, to what extent will the expenditure of this estimate, if it is allowed in full, increase your present equipment?

Colonel GOETHALS. By dredges, tugs, barges, and construction plants for the locks. The barges and tugs are necessary for the transportation of the materials that enter into the composition of the concrete on both ends of the Canal, and for the construction of the plant for the locks themselves at the south side. We expect to pay for the construction plants on the north side from the appropriations for this year. These items were increased for the plant for excavation,

except the dredges, and the dredges are to be used in dam construction.

The CHAIRMAN. Do you estimate for steam shovels?

Colonel GOETHALS. They are not in these estimates.

The CHAIRMAN. And an additional number of cars?

Colonel GOETHALS. We are not estimating any in these estimates. These estimates are for lock and dam construction plants.

MARINE BARRACKS.

The CHAIRMAN. I see you have included here, in addition to the material and equipment, "Marine barracks, \$10,500."

Colonel GOETHALS. Yes.

The CHAIRMAN. Why is it necessary for the Panama Canal Commission to provide barracks for the Marine Corps?

Colonel GOETHALS. They could not be provided for in any other way. They have a lot of old French houses and it was decided to be a proper expenditure against the Canal funds to construct the necessary barracks for the marines.

The CHAIRMAN. Why is it not a legitimate charge against the regular appropriation for the Marine Corps?

Colonel GOETHALS. I think it is and we ought to be relieved of it.

The CHAIRMAN. The officers of the Marine Corps may have found it easier to get it indirectly from Congress through the Commission than to do it out of their own appropriation.

Colonel GOETHALS. We are simply fixing up the buildings there, and making them a little more habitable. The timbers are eaten away so much by the ants and rot.

Mr. GILLET. How long will they remain there?

Colonel GOETHALS. They will be there until removed to the one end of the Canal or the other. Should the Congress undertake to provide fortifications that will bring the Army down here, and the marines can then go home.

Mr. GILLET. When you say they will be there temporarily until removed, you mean as long as the building of the Canal lasts?

Colonel GOETHALS. Yes; as long as the Panama Railroad remains in its present location.

The CHAIRMAN. Did I understand you to say the present buildings were erected by appropriations by Congress?

Colonel GOETHALS. They were practically old French buildings. The proposition came up of building a post for the marines at La Sabanas, but that proposition has been given up, and they remain where they are.

Mr. GILLET. How many are there here?

Colonel GOETHALS. There are about 250.

The CHAIRMAN. Have you submitted the expenditure of this money out of this appropriation to the Comptroller?

Mr. ROGERS. Yes. The trouble about the Naval appropriation was that there was no fund available for the construction of these barracks.

The CHAIRMAN. Was it because the appropriation was not large enough?

Mr. ROGERS. There was no fund there available for the construction of marine barracks. The Comptroller then decided that the

construction of the Canal was sufficiently broad to justify the erection of the marine barracks. At that time it was contemplated to erect them at Congrejo, and they would cost a large sum of money.

Mr. TAYLOR. What was the estimate of cost?

Mr. ROGERS. I think Colonel Goethals's estimate was for \$800,000.

The CHAIRMAN. Do you say you got an opinion from the Comptroller that that can be done?

Mr. ROGERS. Yes.

The CHAIRMAN. He has a long line of decisions as Comptroller to the effect that where Congress has appropriated specifically for marine barracks, you can not take from a general appropriation money and construct out of that money marine barracks unless specifically authorized?

Mr. ROGERS. It was on that line that the decision was rendered. He held that in this particular case it could be done. The \$10,000,000 appropriation was very general in its terms. That provided for the construction and protection of the Canal, and the policing of the Canal, and he held that that fund was available for the purpose of erecting marine barracks.

Mr. ROGERS. Yes, sir. They carried a balance on the books, and I understood later that contracts outstanding would probably consume all of that \$10,000,000.

Mr. GILLET. That would not apply to any annual appropriation that we would make?

Mr. ROGERS. No; that related to that particular fund.

The CHAIRMAN. He has never ruled on the question of using the general appropriation for Canal expenditures down here for the construction and maintenance of barracks?

Mr. ROGERS. I do not think so.

Mr. MADDEN. It would be similar to building police stations?

Colonel GOETHALS. Yes; in a way they are the police force.

The CHAIRMAN. Who pays the maintenance of the Marine Corps?

Colonel GOETHALS. The Naval appropriation bill. They get their pay from the States.

The CHAIRMAN. Does the Commission furnish them anything but the repairs of their buildings?

Colonel GOETHALS. We furnish nothing but the buildings and repairs, and we protested against the repairs. We sell them hotel books and commissary books, and we help them out all we can.

The CHAIRMAN. So that there are some people outside of the people directly employed on the Canal who get the privilege of commissary, etc.?

Colonel GOETHALS. Yes.

Mr. BURLESON. But they are Americans.

Colonel GOETHALS. If they were at marine barracks they would get the benefit of the commissary there and their commissary prices would be cheaper than ours.

CONSTRUCTION OF GENERAL OFFICE BUILDINGS.

The CHAIRMAN. I see you have estimated \$17,500 here for general offices.

Colonel GOETHALS. That is for this year. We have to build an office building at Gorgona for the Chagres Division and we have to build a new office building at Empire. We are now using an old tumble-down French building that will have to be removed, as it interferes with the Cut. We will have to look after repairs to the present administration building in Panama to make the changes to accommodate the force that must be kept in that building after the completion of the new administration building.

CONSTRUCTION OF 30 FOUR-FAMILY HOUSES.

The CHAIRMAN. I see you have estimated for 30 four-family houses.

Colonel GOETHALS. Yes. That comes in Mr. Rousseau's department.

Mr. BURLESON. Do you estimate for these 30 houses in order to meet the necessities of the situation because of the contracts you have already entered into, or does this enable the making of new contracts?

Colonel GOETHALS. Our estimate for houses to be built next year is something like \$1,700,000. We cut it down to that from something like \$3,000,000.

Mr. BURLESON. Are these 30 buildings required to meet contracts already made with married men?

Colonel GOETHALS. Yes. Our contracts require 309 sets of quarters in addition to what we have already building, and includes applications on file September 1. We supposed we would require in the next fiscal year this additional number.

Mr. GILLETT. Colonel, I understand that these contracts do not provide that they shall have room, but that quarters will be provided to them as fast as possible.

Colonel GOETHALS. We agree that they will be.

Mr. GILLETT. You did not carry out that agreement.

Colonel GOETHALS. We tried to. As soon as they can be made available they will be supplied; and then we specify that they will have to wait from six to ten months, ordinarily, to get a set of quarters.

Mr. GILLETT. If we should stop building to-day and not build any more married quarters, they would not be available, and that would not be a breach of contract.

Colonel GOETHALS. We practically promise them in the States to give them quarters in six or ten months, and if we do not do it, it would be a breach of faith.

Mr. BURLESON. Mr. Rogers has asked for copies of these contracts and will examine them with a view to finding out the extent to which the Government is liable.

Colonel GOETHALS. The Comptroller has decided that that is a binding contract on both parties, both the Government and the men. We have not claimed that it was not, but he has decided it is.

Mr. MADDEN. What has he to do with it?

Colonel GOETHALS. He decides all questions of disbursement.

Mr. MADDEN. If he decides to cut it out, you can not be obliged to keep it in?

Colonel GOETHALS. Oh, no.

Mr. MADDEN. There is nothing in the contract that requires you to keep the men?

Colonel GOETHALS. Yes; unless we dismiss the men. I think we should provide the number of buildings estimated for here, and then say that we will not furnish quarters unless there are vacancies.

The CHAIRMAN. On page 14 I see you refer to an office building, and on page 15 you refer to a general office building, \$15,000.

Colonel GOETHALS. It is pretty hard for me to discuss the estimates in this lump form. If you give me time to go through these detailed estimates as we have prepared them, I can tell you just where that is going to be. Mr. Rousseau has charge of the buildings.

The CHAIRMAN. We will take that up with him.

Colonel GOETHALS. We sent the estimates from page 35 on. In Washington they took these estimates and consolidated them. Since the consolidation I have not seen them.

Mr. ROGERS. That was done in order to get an exact comparison with next year.

The CHAIRMAN. We can not possibly make a comparison in any other way.

CHIEF CLERKS.

Colonel GOETHALS. The first thing that struck me yesterday was the number of chief clerks we had. It simply paralyzed me. But I see now how it came about. They simply added our chief clerks together all along the line. Every division has a clerk in charge of the office, and he is called a chief clerk. I have one here. They have one at the Culebra Division, and one at the Chagres Division, and one at Gatun. The Examiner of Accounts has one, and the Disbursing Officer has one. If we add them all up they amount to a good deal.

Mr. GILLET. They all get the salaries of chief clerks?

Mr. BURLESON. They range from \$2,100 to \$3,000?

Colonel GOETHALS. Yes. The chiefs of division in the War Department get \$2,400. I brought in the Blue Book to show that in our clerical force we have not a great disproportion between the salaries paid here and in the Washington offices of the War Department.

Mr. GILLET. But you have a great many more chief clerks in your force than the War Department would have; I mean in proportion to the number of clerks that are under them.

Colonel GOETHALS. That may be true. A clerk in charge of an office is called a chief clerk. He does not get so much salary as a chief clerk. Ours get \$2,100, and in Washington they get \$2,400.

Mr. GILLET. You have one at \$3,600.

Colonel GOETHALS. That is my chief clerk. He does as much work as the chief clerk of the War Department, and that is what the chief clerk of the War Department is getting.

Mr. COURTS, Clerk of the Committee. He gets \$3,000.

Colonel GOETHALS. Does Mr. Schofield get \$3,000?

Mr. COURTS. Yes.

Colonel GOETHALS. And Mr. Schofield rides every day in a carriage over paved streets.

AFTERNOON SESSION.

REDUCTION OF CLERICAL FORCE (AGAIN).

Colonel GOETHALS. I gave you before lunch a statement to the effect that \$16,000 could be deducted from that item for my office. I would like to increase that by \$9,000 more from Major Sibert's office. I have reduced his office force, as estimated here, because he has only one branch of the Department of Construction and Engineering, and I have concluded to keep all files in my office.

Mr. BRICK. What page is that on?

Colonel GOETHALS. Page 46 of the printed bill. I have cut down the secretary to \$2,400, have cut out the chief clerk, and file clerk, and one stenographer. That is on page 46. That makes a saving of \$9,300, which can be added to that \$16,000, and cut off of that item, paragraph 3, page 4. The amount is given on page 5.

Mr. BRICK. That is for clerks also?

Colonel GOETHALS. That is for clerks.

Mr. BRICK. That is \$25,000 altogether?

Colonel GOETHALS. That is \$25,000.

Mr. GARDNER. We are not used to that, Colonel. [Laughter.]

Colonel GOETHALS. I know, but we have reorganized since the estimates were made.

Mr. KEIFER. When did the reorganization take effect?

Colonel GOETHALS. On the first of the month.

The CHAIRMAN. Under whom are the Hydrographic Stations?

Colonel GOETHALS. They come in in connection with locks and dams. Major Sibert will explain those items.

LONGEVITY PAY.

The CHAIRMAN. There is one other matter that I want to inquire about. Who authorized this longevity pay? Was it done by the Commission on its own motion, or whose?

Colonel GOETHALS. It was a sop thrown to the steam-shovel men, and was recommended in the report to the Secretary of War. I had a talk with the Secretary about it, and in order to provide some relief to the demands of the steam-shovel men, it was recommended to the President and approved. The Secretary recommended to the President 3 per cent as the first increase. In the preliminary draft to the President he stated 5 per cent for the first year's service and 3 per cent for each succeeding year's service. When he rendered his final report to the President he made certain changes in his original draft and cabled me the changes I was to make in the draft I had, so that I could promulgate his report to the men. He changed the 5 per cent to 3 per cent. He did not so specify in the cable, so that when I promulgated his decision it provided for 5 per cent for the first year. Ten days afterwards the mail brought down a copy of his report to the President, and I then discovered that he was recommending only 3 per cent, and as I had already told the men he had recom-

mended 5 per cent and as we had steam-shovel difficulties right then and there, we stuck to the 5 per cent; so that I am partly responsible for the 5 per cent for the first year instead of 3 per cent.

Mr. GARDNER. You made it under a misapprehension?

Colonel GOETHALS. Entirely. It was a mistake.

Mr. GILLET. Has it worked well, do you think?

Colonel GOETHALS. Well, they are all satisfied with it, so far as I know.

The CHAIRMAN. Do you know of any work similar to the work of constructing the Canal that is now going on here, or in civil employment of any kind, where longevity pay is allowed?

Colonel GOETHALS. No; not straight longevity. I think it is an inducement, however, for men to continue on here. In our shifting population it may result in our keeping a more permanent force. That is the one thing in its favor.

Mr. KEIFER. It is equivalent to promotion when you could not make promotions?

Colonel GOETHALS. That is what it amounts to.

Mr. KEIFER. That is the whole situation of it.

The CHAIRMAN. It is an increase of salary?

Mr. KEIFER. Undoubtedly.

The CHAIRMAN. And that is what most promotions are.

Mr. KEIFER. I agree with you there.

The following documents were filed by Colonel Goethals:

CULEBRA DIVISION.

Dumping grounds, showing remaining capacity in cubic yards.

Name of dump.	Cubic yards.	Average haul in miles.
Tabernilla.....	12,300,000	15.5
Mamel.....	2,700,000	10.0
Juan Grande.....	200,000	9.0
Gorgona.....	1,000,000	7.0
Chagres.....	500,000	5.5
Gambo.....	400,000	5.0
Bridge 58.....	6,000	4.0
Whitehouse.....	15,000	2.0
Ounnette.....	25,000	2.0
Empire.....	1,000,000	2.5
Olrio.....	150,000	1.5
Culebra.....	900,000	2.0
Lirio.....	8,500,000	3.0
Gold Hill.....	800,000	3.0
Rio Grande.....	320,000	2.5
Cucaracha.....	4,500,000	3.5
Paraiso.....	250,000	3.5
Pedro Miguel.....	60,000	5.0
Corozal.....	1,500,000	* 8.0
Corozal, Sosa dam.....	12,000,000	10.5
La Boca.....	3,000,000	12.0
La Boca dam.....	6,000,000	14.0
New Panama Railroad.....	1,200,000	15.0
Obispo diversion.....	500,000	3.5
Total.....	52,828,000	10.3

* Including New Panama Railroad.

Isthmian Canal Commission clerical force.

• Departments and divisions.	Clerical force.	Monthly salary.
Department of Excavation and Dredging:		
Culebra Division.....	20	\$3,000.00
Chagres Division.....	6	835.00
Colon Division. (Same as lock and dam force.)		
La Boca Division.....	11	1,475.00
Department of Building Construction, Mechanical and Municipal Engineering:		
Building Construction Division.....	95	12,435.00
Mechanical Division.....	75	9,742.50
Municipal Engineering Division.....	31	4,187.50
Department of Locks and Dams:		
Gatun Lock Division.....	9	1,215.00
Gatun Dam Division.....	6	750.00
La Boca Lock Division.....	4	525.00
La Boca Dam Division.....	11	1,450.00
Meteorology and River Hydraulics Division.....	3	475.00
Department of Labor, Quarters, and Subistence.....	63	8,108.33
Department of Civil Administration.....	99	12,145.69
Department of Sanitation.....	71	9,484.50
Division of Material and Supplies.....	117	14,723.00
Disbursing Office.....	127	16,077.00
Examiner of Accounts.....	19	2,483.34
Chairman and Chief Engineer and General Offices.....	28	3,950.00
Total.....	798	108,061.86

Statement showing number of men working in positions of a managerial nature, together with monthly unit and aggregate salaries.

RECAPITULATION.

Positions.	Number.	Salary.	Total.
Chairman and Chief Engineer.....	1	\$1,250.00	\$1,250.00
Commissioners.....	6	1,166.67	7,000.02
Secretary Isthmian Canal Commission.....	1	833.33	833.33
Chief Division Material and Supplies.....	1	833.33	833.33
Division Engineers.....	8	625.00	1,875.00
Do.....	2	583.33	1,166.67
Division Engineer.....	1	550.00	550.00
Do.....	1	416.67	416.67
Do.....	1	350.00	350.00
Assistant Division Engineer.....	1	500.00	500.00
Electrical and Mechanical Engineer.....	1	500.00	500.00
Civil Engineer.....	1	416.67	416.67
Mechanical Engineer.....	1	416.67	416.67
Electrical Engineer.....	1	400.00	400.00
Assistant Engineer.....	1	500.00	500.00
Do.....	1	275.00	275.00
Assistant Engineers.....	6	250.00	1,500.00
Do.....	3	225.00	675.00
Do.....	3	200.00	600.00
Designing Engineers.....	2	350.00	700.00
Office Engineer.....	1	300.00	300.00
Resident Engineers.....	3	300.00	900.00
Resident Engineer.....	1	250.00	250.00
Director of Hospitals.....	1	666.66	666.66
Superintendent, Hospitals.....	1	583.33	583.33
Do.....	1	416.67	416.67
Do.....	1	300.00	300.00
Chief, Medical Clinic.....	1	500.00	500.00
Do.....	1	300.00	300.00
Chief, Surgical Clinic.....	1	500.00	500.00
Do.....	1	300.00	300.00
Chief Sanitary Inspector.....	1	375.00	375.00
Quarantine Officer.....	1	366.66	366.66
Do.....	1	250.00	250.00
Health Officer.....	1	333.33	333.33
Do.....	1	300.00	300.00
Do.....	1	200.00	200.00
Do.....	1	200.00	200.00
Chief, Board of Health.....	1	333.33	333.33
Executive Officer, Sanitary.....	1	250.00	250.00
Superintendent, Nurses.....	1	150.00	150.00
Do.....	1	125.00	125.00
Chief Nurse.....	1	125.00	125.00
Do.....	1	100.00	100.00
Head Nurse.....	1	100.00	100.00

116 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Statement showing number of men working in positions of a managerial nature, together with monthly unit and aggregate salaries—Continued.

RECAPITULATION—Continued.

Positions.	Number.	Salary.	Total.
Assistant Manager, Labor, Quarters, and Subsistence.	1	\$500.00	\$500.00
Superintendent Transportation.	1	416.67	416.67
Assistant Superintendent Transportation.	1	250.00	250.00
Superintendent Construction.	4	300.00	1,200.00
Assistant Superintendent Construction.	3	250.00	750.00
Acting Superintendent Construction.	1	250.00	250.00
Superintendent Excavation.	1	275.00	275.00
Superintendent, Dredge.	1	250.00	250.00
Superintendent, Motive Power and Machinery.	1	625.00	625.00
Superintendent Air Compressor.	1	350.00	350.00
Superintendent, Building.	8	225.00	1,800.00
Assistant Superintendent, Building.	1	185.00	185.00
Assistant Superintendent, Conductors.	1	250.00	250.00
Superintendent.	1	250.00	250.00
Do.	2	200.00	400.00
Assistant Superintendent.	1	200.00	200.00
Superintendents, Labor, Quarters, and Subsistence.	4	275.00	1,100.00
Superintendent, Schools.	1	250.00	250.00
Superintendent, Laundry.	1	175.00	175.00
Superintendent, Transportation.	1	175.00	175.00
Supervisor.	1	250.00	250.00
Supervisors.	2	225.00	450.00
Supervisor, Road Engines.	1	225.00	225.00
Supervisors.	9	200.00	1,800.00
Do.	27	175.00	4,725.00
Do.	4	166.67	666.68
Do.	5	150.00	750.00
General Foremen.	6	225.00	1,350.00
Do.	1	210.00	210.00
Do.	17	200.00	3,400.00
Do.	5	185.00	925.00
Do.	21	175.00	3,675.00
Foreman, Dredge.	1	170.00	170.00
General Foremen.	3	165.00	495.00
Do.	11	160.00	1,760.00
Do.	1	155.00	155.00
Do.	100	150.00	15,000.00
Corral Foremen.	4	125.00	500.00
Do.	2	100.00	200.00
Night Corral Foremen.	2	75.00	150.00
Master Car Builder.	1	300.00	300.00
Master Mechanic.	1	375.00	375.00
Do.	2	325.00	650.00
Do.	1	250.00	250.00
Chief Draftsman.	1	225.00	225.00
Boiler Inspector.	1	275.00	275.00
Master Builder.	1	500.00	500.00
Assistant Master Builder.	1	300.00	300.00
Architect.	1	300.00	300.00
Secretaries.	2	300.00	600.00
Secretary.	1	200.00	200.00
Chief Clerks.	2	300.00	600.00
Do.	1	275.00	275.00
Do.	2	250.00	500.00
Do.	1	225.00	225.00
Do.	7	200.00	1,400.00
Do.	3	175.00	525.00
Collector of Customs.	1	416.67	416.67
Legal Adviser.	1	375.00	375.00
Water Commissioner.	1	333.33	333.33
Chief of Police.	1	333.33	333.33
Prosecuting Attorney.	1	300.00	300.00
Assistant Prosecuting Attorney.	1	200.00	200.00
Chief Fire Department.	1	208.33	208.33
Postmaster.	1	200.00	200.00
Do.	1	166.67	166.67
Postmasters.	2	158.33	316.66
Do.	1	150.00	150.00
Do.	6	137.50	825.00
Postmaster.	1	125.00	125.00
Police Sergeants.	4	127.50	510.00
Do.	2	125.00	250.00
Do.	5	120.00	600.00
Trainmaster.	1	250.00	250.00
Yardmasters.	2	226.80	453.60
Do.	7	225.75	1,580.25
Do.	8	220.50	1,764.00
Do.	1	190.00	190.00
Assistant Yardmasters.	2	150.00	300.00

Statement showing number of men working in positions of a managerial nature, together with monthly unit and aggregate salaries—Continued.

RECAPITULATION—Continued.

Positions.	Number.	Salary.	Total.
Disbursing Officer.....	1	\$855.00	\$855.00
Examiner of Accounts.....	1	300.00	300.00
Assistant Manager Hotel.....	1	175.00	175.00
Steward.....	1	150.00	150.00
Stewards.....	7	125.00	875.00
Do.....	19	100.00	1,900.00
Do.....	6	83.33	500.00
Do.....	5	75.00	375.00
Masters, Dredge.....	2	225.00	450.00
Captain, Dredge.....	1	157.50	157.50
Captains, Dredge.....	2	135.00	270.00
Captains, Barge.....	4	125.00	500.00
Captain, Barge.....	1	138.37	138.37
Captain, Tug.....	1	141.75	141.75
Do.....	1	125.00	125.00
Stationer and Printer.....	1	200.00	200.00
Storekeepers.....	4	208.33	208.33
Do.....	2	175.00	350.00
Do.....	2	150.00	300.00
Do.....	2	125.00	250.00
Grand total.....			101,335.48

CHIEF ENGINEER.

Chairman and Chief Engineer.....	1	\$1,250.00	\$1,250.00
Private Secretary.....	1	300.00	300.00
Chief Clerk.....	1	300.00	300.00
Office Engineer.....	1	300.00	300.00
Assistant Chief Clerk.....	1	200.00	200.00

BUILDING DIVISION.

Master Builder.....	1	\$500.00	\$500.00
Assistant Master Builder.....	1	300.00	300.00
Architect.....	1	300.00	300.00
Superintendents.....	8	225.00	1,800.00
Chief Clerk.....	1	200.00	200.00
Assistant Superintendent.....	1	185.00	185.00
General Foremen.....	5	185.00	925.00
Do.....	3	175.00	525.00
Do.....	2	165.00	330.00
Do.....	10	160.00	1,600.00
General Foreman.....	1	155.00	155.00
General Foremen.....	5	150.00	750.00

MECHANICAL DIVISION.

Superintendent Motive Power and Machinery.....	1	\$625.00	\$625.00
Mechanical Engineer.....	1	416.67	416.67
Electrical Engineer.....	1	400.00	400.00
Master Car Builder.....	1	300.00	300.00
Master Mechanic.....	1	375.00	375.00
Master Mechanics.....	2	325.00	650.00
Master Mechanic.....	1	250.00	250.00
Superintendent Air Compressor.....	1	350.00	350.00
Chief Clerk.....	1	225.00	225.00
Supervisor Road Engines.....	1	220.50	220.50
Chief Draftsman.....	1	225.00	225.00
Boiler Inspector.....	1	275.00	275.00
Acting Supervisor Road Engines.....	1	225.00	225.00
Foreman.....	1	210.00	210.00
General Foremen.....	14	200.00	2,800.00
Do.....	6	225.00	1,350.00
Foreman Painter.....	1	175.00	175.00
Line Foreman.....	1	175.00	175.00
Yardmaster.....	1	190.00	190.00

118 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Statement showing number of men working in positions of a managerial nature, together with monthly unit and aggregate salaries—Continued.

CULEBRA DIVISION.

Positions.	Number.	Salary.	Total.
Division Engineer.....	1	\$825.00	\$825.00
Assistant Division Engineer.....	1	500.00	500.00
Superintendent Transportation.....	1	416.67	416.67
Superintendent Construction.....	4	300.00	1,200.00
Assistant Superintendent Construction.....	8	250.00	750.00
Acting Superintendent Construction.....	1	250.00	250.00
Chief Clerk.....	1	250.00	250.00
Trainmaster.....	1	250.00	250.00
Assistant Superintendent Transportation.....	1	250.00	250.00
Assistant Engineer.....	2	250.00	500.00
Supervisor.....	1	250.00	250.00
Superintendent.....	1	250.00	250.00
Assistant Superintendent Conductors.....	1	250.00	250.00
Supervisor Excavations.....	1	225.00	225.00
Yardmasters.....	2	225.80	453.60
Do.....	7	225.75	1,580.25
Do.....	8	220.50	1,764.00
Supervisor Transportation.....	1	220.00	220.00
Supervisors.....	6	200.00	1,200.00
Do.....	2	175.00	350.00
Supervisor.....	1	150.00	150.00
Assistant Supervisors.....	8	175.00	425.00
Foreman Conductor.....	1	200.00	200.00
General Foremen.....	2	200.00	400.00
Do.....	11	175.00	1,925.00
General Foreman.....	1	165.00	165.00
General Foremen.....	54	150.00	8,100.00

CHAGRES DIVISION.

Division Engineer.....	1	\$583.33	\$583.33
Resident Engineer.....	1	300.00	300.00
General Foremen.....	2	175.00	350.00
Do.....	2	150.00	300.00

DIVISION OF METEOROLOGY AND RIVER HYDRAULICS.

Division Engineer.....	1	\$350.00	\$350.00
Chief Clerk.....	1	200.00	200.00

DIVISION OF LA BOCA LOCKS.

Division Engineer.....	1	\$825.00	\$825.00
Resident Engineer.....	1	300.00	300.00
Supervisor.....	1	200.00	200.00
General Foreman.....	1	150.00	150.00

DIVISION OF LA BOCA DAMS.

Division Engineer.....	1	\$416.67	\$416.67
Assistant Engineer.....	1	275.00	275.00
Chief Clerk.....	1	175.00	175.00
General Foreman.....	1	175.00	175.00
General Foremen.....	2	150.00	300.00
General Foreman, Dredge.....	1	170.00	170.00
General Foreman.....	1	160.00	160.00

DEPARTMENT OF LOCKS AND DAMS.

Supervisory Engineer.....	1	\$1,166.67	\$1,166.67
Assistant Engineer.....	1	500.00	500.00
Electrical and Mechanical Engineer.....	1	500.00	500.00
Civil Engineer.....	1	416.67	416.67
Designing Engineers.....	2	350.00	700.00
Assistant Engineer.....	1	250.00	250.00
Secretary.....	1	200.00	200.00

Statement showing number of men working in positions of a managerial nature, together with monthly unit and aggregate salaries—Continued.

DIVISION OF GATUN DAMS.

Positions.	Number.	Salary.	Total.
Division Engineer.....	1	\$550.00	\$550.00
Assistant Engineer.....	1	250.00	250.00
Do.....	1	225.00	225.00
Supervisor.....	1	225.00	225.00
Supervisors.....	11	175.00	1,925.00
Assistant Engineers.....	2	200.00	400.00
Chief Clerk.....	1	175.00	175.00
Assistant Yardmaster.....	1	150.00	150.00
Chief Timekeeper.....	1	140.00	140.00
General Foremen.....	5	150.00	750.00

DIVISION OF CRISTOBAL DREDGING.

Resident Engineer.....	1	\$250.00	\$250.00
Superintendent, Dredge.....	1	250.00	250.00
Superintendent.....	1	200.00	200.00
Supervisor.....	1	200.00	200.00
Masters, Dredge.....	2	225.00	450.00
Captain, Dredge.....	1	157.50	157.50
Captains, Dredge.....	2	135.00	270.00
Captains, Barge.....	4	125.00	500.00
Captain, Barge.....	1	{ 135.00 141.75 }	128.37
General Foremen.....	7	150.00	1,050.00
Captain, Tug.....	1	141.75	141.75
Do.....	1	125.00	125.00

DIVISION OF MUNICIPAL ENGINEERING.

Division Engineer.....	1	\$325.00	\$325.00
Assistant Engineer.....	1	250.00	250.00
Assistant Engineers.....	2	225.00	450.00
Chief Clerk.....	1	200.00	200.00
Superintendent.....	1	200.00	200.00
Supervisors.....	4	175.00	700.00
Storekeeper.....	1	150.00	150.00
General Foremen.....	14	150.00	1,750.00

DIVISION OF MATERIAL AND SUPPLIES.

Chief of Division.....	1	\$833.33	\$833.33
Chief Clerk.....	1	275.00	275.00
Storekeepers.....	4	208.33	833.33
Stationer and Printer.....	1	200.00	200.00
Storekeepers.....	2	175.00	350.00
Storekeeper.....	1	150.00	150.00
Superintendent Transportation.....	1	175.00	175.00
General Foremen.....	2	175.00	350.00
Lumber Foreman.....	1	150.00	150.00
General Foremen.....	5	150.00	750.00
Storekeepers.....	2	125.00	250.00
Corral Foremen.....	4	125.00	500.00
Corral Foreman.....	1	100.00	100.00
Night Corral Foreman and Watchman.....	1	100.00	100.00
Night Corral Foremen and Watchmen.....	2	75.00	150.00

DIVISION OF GATUN LOCKS.

Division Engineer.....	1	\$583.33	\$583.33
Resident Engineer.....	1	300.00	300.00
Superintendent Excavation.....	1	275.00	275.00
Assistant Engineer.....	1	250.00	250.00
Do.....	1	200.00	200.00
Supervisor.....	1	200.00	200.00
Supervisors.....	2	175.00	350.00
Chief Clerk.....	1	175.00	175.00
Chief Timekeeper.....	1	150.00	150.00
Assistant Yardmaster.....	1	150.00	150.00
General Foremen.....	4	150.00	600.00

• Day.

• Night.

120 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Statement showing number of men working in positions of a managerial nature, together with monthly unit and aggregate salaries—Continued.

EXAMINER OF ACCOUNTS.

Positions.	Number.	Salary.	Total.
Examiner of Accounts.....	1	\$300.00	\$300.00
Chief Clerk.....	1	200.00	200.00

DISBURSING OFFICE.

Disbursing Officer.....	1	\$655.00	\$655.00
Chief Clerk.....	1	300.00	300.00

DEPARTMENT OF LABOR, QUARTERS, AND SUBSISTENCE.

Manager.....	1	\$1,166.67	\$1,166.67
Assistant Manager.....	1	500.00	500.00
Superintendents.....	4	275.00	1,100.00
Chief Clerk.....	1	250.00	250.00
Labor Agent.....	1	312.50	312.50
Do.....	1	300.00	300.00
Labor Agents.....	4	250.00	1,000.00
Supervisors.....	5	175.00	875.00
Do.....	4	166.67	666.68
Do.....	4	150.00	600.00
Assistant Manager Hotel.....	1	175.00	175.00
Chief Cook.....	1	150.00	150.00
General Foreman.....	1	150.00	150.00
Steward.....	1	150.00	150.00
Stewards.....	7	125.00	875.00
Do.....	19	100.00	1,900.00
Do.....	6	83.33	500.00
Do.....	5	75.00	375.00

DEPARTMENT OF SANITATION.

Chief Sanitary Officer.....	1	\$1,166.67	\$1,166.67
Director of Hospitals.....	1	666.66	666.66
Superintendent, Hospitals.....	1	583.33	583.33
Chief, Medical Clinic.....	1	500.00	500.00
Do.....	1	300.00	300.00
Chief, Surgical Clinic.....	1	500.00	500.00
Do.....	1	300.00	300.00
Superintendent, Hospitals.....	1	416.67	416.67
Chief Sanitary Inspector.....	1	375.00	375.00
Quarantine Officer.....	1	366.66	366.66
Health Officer.....	1	333.33	333.33
Chief, Board of Health.....	1	333.33	333.33
Health Officer.....	1	300.00	300.00
Superintendent San Tomas Hospital.....	1	300.00	300.00
Health Officer.....	1	290.00	290.00
Quarantine Officer.....	1	250.00	250.00
Executive Officer.....	1	250.00	250.00
Health Officer.....	1	200.00	200.00
Chief Clerk.....	1	200.00	200.00
Superintendent, Laundry.....	1	175.00	175.00
Superintendent, Nurses.....	1	150.00	150.00
Do.....	1	125.00	125.00
Chief Nurse.....	1	125.00	125.00
Do.....	1	100.00	100.00
Head Nurse.....	1	100.00	100.00

DEPARTMENT OF CIVIL ADMINISTRATION.

Head of Department.....	1	\$1,166.67	\$1,166.67
Associate Justice.....	1	500.00	500.00
Collector of Customs.....	1	416.67	416.67
Legal Adviser.....	1	375.00	375.00
Water Commissioner.....	1	333.33	333.33
Chief Police.....	1	333.33	333.33
Executive Secretary.....	1	300.00	300.00
Prosecuting Attorney.....	1	300.00	300.00
Assistant Prosecuting Attorney.....	1	200.00	200.00
Superintendent Schools.....	1	250.00	250.00
Chief Fire Department.....	1	208.33	208.33
Assistant Superintendent.....	1	200.00	200.00

Statement showing number of men working in positions of a managerial nature, together with monthly unit and aggregate salaries—Continued.

Positions.	Number.	Salary.	Total.
Chief Clerk.....	1	\$200.00	\$200.00
Postmaster.....	1	200.00	200.00
Do.....	1	166.67	166.67
Postmasters.....	2	158.33	316.66
Postmaster.....	1	150.00	150.00
Postmasters.....	6	137.50	825.00
Postmaster.....	1	125.00	125.00
Police Sergeants.....	4	127.50	510.00
Do.....	2	125.00	250.00
Do.....	5	120.00	600.00

Comparative statement of salaries and wages paid in 1907, estimated for 1908, paid for 1908, and estimated for 1909.

	Paid June 30, 1907.	Estimated 1908.	Paid Dec. 1, 1907.	Estimated 1909.
<i>Department of Construction and Engineering.</i>				
Chief Engineer.....	\$15,000.00	\$30,000.00	\$15,000.00	\$15,000.00
Assistant Chief Engineer ^a		15,000.00		
Principal Assistant Engineer ^a	7,500.00	7,000.00		
Electrical Mechanical Engineer.....			6,000.00	6,000.00
Private Secretary.....	3,600.00	3,000.00	3,600.00	3,600.00
Chief Clerk.....	3,600.00	2,400.00	3,600.00	3,600.00
<i>Building Construction.</i>				
Master Builder.....	6,000.00	6,000.00	6,000.00	6,000.00
Assistant Master Builder.....	3,600.00	3,600.00	3,600.00	3,600.00
Architect.....	3,000.00	3,600.00	3,600.00	3,600.00
Chief Clerk.....	2,400.00	2,400.00	2,400.00	2,400.00
Superintendents.....	2,700.00	2,400.00	2,700.00	2,700.00
<i>Motive Power and Machinery.</i>				
Superintendent.....	7,500.00	6,000.00	7,500.00	7,500.00
Mechanical Engineer.....	5,000.00	4,000.00	5,000.00	5,000.00
Chief Clerk.....	2,400.00	2,400.00	2,700.00	2,700.00
Electrical Engineer.....	4,800.00	4,500.00	4,800.00	4,800.00
Master Mechanic.....	3,900.00	3,900.00	3,900.00	3,900.00
	3,900.00	4,500.00	4,500.00	4,500.00
Superintendent Air Compressors ^b	3,600.00	3,600.00		4,200.00
Master Car Builder.....	3,600.00		3,600.00	3,600.00
<i>Material and Supplies.</i>				
Chief.....	9,000.00	9,000.00	10,000.00	10,000.00
Chief Clerk.....	3,000.00	3,000.00	3,300.00	3,000.00
Chief Clerk.....				2,700.00
Assistant Chief Clerk.....	2,400.00		2,400.00	
Chief Clerk.....	2,100.00	2,400.00	2,100.00	2,400.00
Chief Clerk.....	2,700.00	2,700.00	2,700.00	2,400.00
Stationer and Printer.....	2,400.00	2,400.00	2,400.00	2,400.00
Superintendent of Transportation.....	2,100.00	2,100.00	2,100.00	2,100.00
Veterinary Surgeon.....	2,400.00	2,100.00	2,100.00	2,100.00
<i>Labor, Quarters, and Subsistence.</i>				
Manager.....	10,000.00	7,200.00	14,000.00	14,000.00
Assistant Manager.....	4,000.00	4,000.00	6,000.00	6,000.00
Superintendents.....	3,000.00	3,000.00	3,000.00	3,000.00
Supervisors.....	1,800.00		1,800.00	1,800.00
	2,000.00		2,000.00	2,100.00
	2,100.00		2,100.00	2,400.00
Division Engineers.....	4,200.00	3,600.00	4,200.00	3,500.00
	5,000.00	6,000.00	5,000.00	5,000.00
	6,000.00	7,500.00	6,000.00	6,600.00
	7,000.00		7,000.00	7,500.00
			7,500.00	
Assistant Division Engineer.....	5,000.00	4,000.00	6,000.00	6,000.00
Resident Engineers.....	3,600.00	3,300.00	3,600.00	3,300.00
		3,600.00		3,600.00

^a Abolished.

^b Position abolished November, 1907. Work performed by master mechanic, Empire shop, without increased pay.

122 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Comparative statement of salaries and wages paid in 1907, etc.—Continued.

	Paid June 30, 1907.	Estimated 1908.	Paid Dec. 1, 1907.	Estimated 1909.
Assistant Engineer.....	\$2,700.00 3,000.00	\$2,400.00 2,700.00 3,000.00 3,800.00 4,000.00	\$2,700.00 3,000.00	\$2,400.00 2,700.00 3,000.00 4,000.00
Instrument Men.....	2,100.00	2,100.00	2,100.00	2,100.00
Transit Men.....	1,800.00	1,800.00	1,800.00	1,800.00
Level Men.....	1,200.00	1,600.00	1,200.00	1,200.00
Rodmen.....	1,500.00 1,000.00	1,000.00 1,200.00	1,500.00 1,000.00	1,500.00 900.00 1,000.00 1,200.00
Draftsmen.....	1,800.00 1,500.00 1,800.00 2,100.00 2,400.00	1,000.00 1,200.00 1,500.00 1,600.00 1,900.00 2,400.00 2,700.00	1,200.00 1,500.00 1,800.00 2,100.00 2,400.00	1,000.00 1,200.00 1,500.00 1,800.00 2,100.00 2,400.00 2,700.00 3,000.00
Designing Engineer.....	3,800.00	4,200.00	4,200.00	3,800.00 4,200.00 6,000.00
Superintendents.....	2,100.00 3,000.00 2,700.00 3,000.00 3,600.00 4,200.00 5,000.00	2,100.00 2,400.00 2,700.00 3,000.00 3,600.00 4,200.00 5,000.00	2,100.00 2,400.00 2,700.00 3,000.00 3,600.00 4,200.00 5,000.00	2,100.00 2,400.00 2,700.00 3,000.00 3,600.00 4,000.00 4,200.00 5,000.00
Supervisors.....	2,400.00 2,640.00 2,700.00 3,000.00	1,500.00 1,800.00 2,100.00 2,400.00 3,000.00	2,400.00 2,640.00 2,700.00 3,000.00	2,100.00 2,400.00 2,640.00 3,000.00 3,600.00
Assistant Supervisors.....	2,100.00		2,100.00	
Trainmaster.....	3,000.00	2,700.00	3,000.00	2,700.00 3,000.00
Yardmaster.....	2,100.00	2,220.00 2,400.00	2,100.00	*2,520.00
Conductors.....	*2,400.00 1,800.00 2,040.00 *2,280.00		2,400.00 1,800.00 2,040.00 *2,280.00	2,400.00 1,800.00 2,040.00 *2,280.00
Trainmen.....	1,000.00 *1,200.00		1,000.00 *1,200.00	1,000.00 *1,200.00
Locomotive Engineers.....	2,160.00 *2,520.00		2,160.00 *2,520.00	2,160.00 *2,520.00
Locomotive Firemen.....	900.00 *1,000.00		900.00 *1,000.00	900.00 *1,000.00
Steam Shovel Engineers.....	*2,520.00	Estimated for unskilled labor; no de- tailed esti- mate.	*2,520.00	*2,520.00
Steam Shovel Cranesmen.....	*2,220.00		*2,220.00	*2,220.00
Steam Shovel Firemen.....	900.00		900.00	900.00
Pit Foremen.....	*1,000.00		*1,000.00	*1,000.00
All trades: * Grade 1.....	1,000.00		1,000.00	1,000.00
Grade 2.....	p. h. 0.32		p. h. 0.32	p. h. 0.32
Grade 3.....	p. h. 0.38		p. h. 0.38	p. h. 0.38
Grade 4.....	p. h. 0.44		p. h. 0.44	p. h. 0.44
Grade 5.....	p. h. 0.50		p. h. 0.50	p. h. 0.50
Grade 6.....	p. h. 0.56		p. h. 0.56	p. h. 0.56
Foremen: * Grade 1.....	p. h. 0.65-75		p. h. 0.65-75	p. h. 0.65-75
Grade 2.....	900.00	900.00	900.00	840.00
Grade 3.....	1,200.00	1,000.00	1,200.00	900.00
Grade 4.....	1,500.00	1,200.00	1,500.00	1,000.00
Specials.....	1,800.00	1,500.00	1,800.00	1,200.00
General.....	2,100.00	1,800.00	2,100.00	1,500.00
		2,100.00	2,400.00	1,680.00
		2,400.00	2,700.00	1,800.00
		2,700.00	3,000.00	2,040.00
				2,100.00
				2,400.00
				3,000.00

*And longevity.

*Abolished.

Comparative statement of salaries and wages paid in 1907, etc.—Continued.

	Paid June 30, 1907.	Estimated 1908.	Paid Dec. 1, 1907.	Estimated 1908.
Clerk and Accountants	\$1,200.00	\$900.00	\$1,200.00	\$900.00
to 2,400.00		to 2,400.00	to 2,400.00	to 2,400.00
Chief Clerks or Chief Accountants	2,100.00	2,100.00	2,100.00	2,100.00
to 3,600.00		to 3,600.00	to 3,600.00	to 3,600.00
Storekeepers	1,500.00	1,500.00	1,500.00	1,000.00
to 3,000.00		to 3,000.00	to 3,000.00	to 3,000.00
Department of Civil Administration.				
Governor	14,000.00	17,500.00	14,000.00	14,000.00
Executive Secretary	3,600.00	3,600.00	3,600.00	3,600.00
Chief Clerk	2,400.00		2,400.00	2,400.00
Judiciary:				
Chief Justice.....	6,500.00	6,500.00	6,500.00	6,500.00
Associate Justices.....	6,000.00	6,000.00	6,000.00	6,000.00
Circuit Clerks.....	2,000.00	2,000.00	2,000.00	2,100.00
Supreme Court Clerk.....		3,000.00		3,000.00
Municipalities:				
Chief of Division ^a		3,600.00		
Legal:				
General Counsel.....	6,000.00	6,000.00	(?)	3,000.00
Legal Adviser.....	3,900.00	4,000.00	3,900.00	
Prosecuting Attorney.....		3,600.00	3,000.00	
Revenues:				
Collector of Revenues.....	5,000.00	5,000.00	5,000.00	5,000.00
Deputy Collector of Revenues.....	2,400.00	2,400.00	2,400.00	2,400.00
Deputy Collector of Revenues.....	2,100.00	2,100.00	2,100.00	2,100.00
Police:				
Chief of Police.....	4,000.00	4,000.00	4,000.00	4,000.00
Chief Clerk.....	2,100.00	2,100.00	2,100.00	2,100.00
First Lieutenant.....	2,475.00	2,000.00	2,475.00	2,000.00
Second Lieutenant.....	1,400.00	1,600.00	1,400.00	1,800.00
Disbursing Office:				
Disbursing Officer.....	7,890.00	7,890.00	7,890.00	7,890.00
Chief Clerk.....	3,600.00	3,600.00	3,600.00	3,600.00
Assistant Chief Clerk.....	2,400.00	2,400.00	2,400.00	
Cashier.....	3,100.00	3,100.00	3,100.00	3,600.00
Paymasters.....	2,500.00	2,500.00	2,500.00	2,500.00
Auditing:				
General Auditor ^a	10,000.00	10,000.00		
Local Auditor ^a	4,500.00	3,600.00		
Examiner of Accounts.....			4,500.00	4,500.00
Assistant Examiner of Accounts.....			3,500.00	3,600.00
Chief Clerk (Accountant).....		2,400.00	2,400.00	2,700.00
Sanitary:				
Chief Sanitary Officer.....	10,000.00	10,000.00	14,000.00	14,000.00
Executive Officer.....	4,875.00	3,300.00	4,875.00	5,200.00
Chief Clerk.....	2,400.00	2,100.00	2,400.00	2,400.00
Director of Hospitals.....	8,000.00	8,000.00	8,000.00	8,000.00
Superintendents of Hospitals.....	8,600.00	3,600.00	3,600.00	3,600.00
	5,000.00	5,000.00	5,000.00	5,000.00
	7,000.00	7,000.00	7,000.00	7,000.00
Health Officer	3,600.00	3,600.00	3,600.00	4,000.00
Health Officer	3,600.00	3,600.00	3,600.00	4,000.00
Assistant Health Officer.....	2,750.00	2,400.00	2,760.00	2,400.00
Chief Quarantine Officer.....	7,000.00	3,500.00	7,000.00	7,000.00
Quarantine Officers.....	3,000.00		3,000.00	3,500.00
	3,500.00		3,500.00	
Assistant Quarantine Officer				
		2,400.00		2,400.00
Chief Sanitary Inspector.....	4,500.00	3,600.00	4,500.00	4,500.00
Assistant Chief Sanitary Inspector.....	2,400.00	2,100.00	2,400.00	2,400.00
Chief Clerk.....	2,100.00		2,100.00	2,100.00
Chief of Office.....	4,500.00	4,500.00	4,500.00	4,500.00
Pathologists.....	3,000.00	3,000.00	3,000.00	3,000.00
Bacteriologist.....	2,400.00	2,000.00	2,400.00	3,000.00
Physicians.....	1,800.00	1,800.00	1,800.00	1,800.00
	2,400.00	2,400.00	2,400.00	2,400.00
	3,000.00	3,000.00	3,000.00	3,000.00
	3,300.00		3,300.00	3,600.00
	3,480.00		3,480.00	
Surgeon	4,500.00	4,500.00	4,500.00	4,500.00
Chief of Laboratory.....	4,000.00	4,000.00	4,000.00	4,000.00
Chemist			2,400.00	3,000.00

^aAnd longevity.

^bAbolished.

Allowances in addition to salary.

COMMISSIONERS.

Colonel Goethals:

Quarters, \$22,982.82 (built for Mr. Stevens).

Furniture, crockery, table and bed linen furnished. List of articles attached, value not calculated—turned over by the old French Company.

Fuel, \$7 per month.

Light, \$37 per month.

Maj. Wm. L. Sibert:

Quarters, \$20,348.29 (built for Mr. Sullivan, Assistant Chief Engineer).

Furniture, crockery, table and bed linen furnished, value \$800.

Fuel, \$7 per month.

Light, \$15 per month.

Maj. D. D. Gaillard:

Quarters, \$14,551 (estimated).

Fuel, \$7 per month (estimated).

Light, \$15 per month (estimated).

Furniture ordered, value \$600. No crockery nor table linen yet ordered.

Mr. H. H. Rousseau:

Quarters, \$14,551 (estimated).

Fuel, \$7 per month (estimated).

Light, \$15 per month (estimated).

Furniture ordered, value \$600. No crockery nor table linen yet ordered.

Senator Blackburn:

Quarters, \$14,777 (estimated).

Furniture, crockery, table linen, \$800, loaned by Tivoli—new set ordered of value \$600.

Fuel, \$7 per month (estimated).

Light, \$15 per month (estimated).

Colonel Gorgas:

Quarters under construction (estimated cost \$14,777). Furniture \$600 (estimated).

(Lives at mess.)

Light, \$15 per month.

Jackson Smith:

Quarters, \$7,916.84; furniture, \$500.

Fuel, \$5 per month.

Light, \$9 per month.

Joseph Bucklin Bishop:

Quarters under construction (estimated \$14,777). Furniture of value \$600 ordered.

Crockery and table linen not yet ordered.

Fuel, \$7 per month (estimated).

Light, \$15 per month (estimated).

The Commissioners and the Secretary are each allowed the use of a carriage and horses.

Married men are furnished family quarters, furniture, fuel, light, and water. At points where there are sterilizers, distilled water is delivered daily, free of charge. Supplies are delivered free. Each employee is allowed one pass per month.

The value of these allowances varies as follows:

1. Employees receiving under \$200 per month—
Quarters represents a value of \$1,500.
Furniture represents a value of \$140.
Fuel and delivery represents a value of \$2 per month.
Light represents a value of \$4.50 per month.
2. Employees receiving \$200 to \$300 per month—
Quarters represents a value of \$2,430.
Other allowances similar to No. 1.
3. Employees receiving \$300 to \$400 per month—
Quarters represents a value of \$3,720.
Light represents a value of \$7.50 per month.
Other allowances similar to No. 1.

4. Employees receiving \$400 and over—

Quarters represents a value of \$4,345 to \$5,860.

Furniture represents a value of \$330.

Fuel represents a value of \$4 per month.

Light represents a value of \$12 per month.

Bachelors' quarters represents a value of \$200 per man. Furniture represents a value of \$50 per man (actually less). Light represents a value of 50 cents per month. Janitor service represents a value of \$1.25 per month.

One pass per month is allowed each employee. All bachelors are given practically the same allowances. Those receiving \$200 or more usually have a room to themselves, and their quarters would represent a value of \$400. Water is furnished in houses.

Employees whose salaries are fixed on an annual or monthly basis are allowed six weeks' leave of absence with pay for each twelve months' service.

All employees above the grade of laborer, unaccustomed to a tropical climate, may be granted fifteen days' sick leave with pay for each six months' service, on the certificate of an authorized physician in the service of the Department of Health of the Isthmian Canal Commission that the employee has been unable to work on account of illness contracted through no fault of his own. Such employees may also be granted leave on account of injury, incurred in the performance of duty, not to exceed thirty days in any current year.

Equipment in residence of Chief Engineer, Culebra.

Baskets, wire, waste	3	Decanters, wineglass	3
Bedspreads	10	Forks:	
Blankets:		Flesh	3
Single	4	Pickle, silver	1
Double	3	Fish, silver	1
Broilers	3	Table, silver	42
Beaters, egg	2	Carving	1
Baking iron	1	Grater, nutmeg	1
Bowls:		Glasses:	
Finger, glass	13	Water	12
Sugar, china	1	Champagne	36
Sauce, china	5	Lemonade	14
Boxes, bread, japanned	2	Red wine, assorted	25
Bell, call, silver	1	White wine	10
Clock, wall	1	Fine wine	18
Collander	1	Cocktail	15
Cleaver, meat	1	Colored wine	3
Coffee mill	1	Liquor	9
Can openers	2	Jelly molds	2
Cake turner	1	Knives:	
Choppers	2	Kitchen	4
Cups:		Table, white-handled	12
China	13	Bread and butter, silver	10
Coffee	5	Dinner, silver	19
After dinner	12	Carving	1
China egg	2	Kitchen	5
Cuspidors, stone china	3	Fish, silver	1
Covers, glass, small	5	Knife rests:	
Cruets, vinegar	3	Silver	1
Cocktail shakers, silver	1	Glass	8
Dishes:		Ladle	1
Salad, china	4	Lemon squeezer	1
Fruit, glass	1	Ladle, soup, silver	1
Fruit, china	1	Lid, silver	1
Baking, china	1	Masher, potato	1
Soap, china	1	Napkins	87
Vegetable, covered, china	3	Nut crackers	3
Vegetable, covered, silver	5	Oil can, tin	1
Individual meat	1	Piano	1
Ice cream, glass	4	Pictures	7

Equipment in residence of Chief Engineer, Culebra—Continued.

Pillowcases	25	Steel, butcher	1
Pans:		Skimmer	1
Baking	7	Spoons:	
Frying	3	Basting	3
Sauce	14	Wooden	1
Dish	2	Strainer, tin, large	1
Muffin	2	Sifter, flour	1
Pots:		Strainer, coffee	1
White enameled, small	2	Saucers:	
Granite	2	China	13
Plates, pie	9	Coffee	5
Potato grater	1	After dinner	12
Plates:		Shakers, salt	5
Soup, china	11	Stands, fruit, silver	3
Dinner, china	32	Spoons:	
Lunch, china	9	Salt, silver	4
Breakfast, china	5	Tea, silver	40
Dessert, china	6	Table, silver	22
Platters, meat, assorted	8	Salts, individual, glass	18
Pitchers:		Towels:	
Water, china	2	Hand	89
Earthenware	1	Bath	28
Cream, china	1	Tablecloths	9
Water, glass	2	Table, ironing	1
Water, silver	2	Tubs	4
Pots:		Toaster	1
Chocolate, china	1	Tank, hot water	1
Tea, china	2	Wringer, clothes	1
Tea, with holder, silver	1	Washboards	4
Rings, napkin, silver	10	Wash boilers	3
Stool, piano	1	Walters, japanned	2
Sweepers, carpet	2	Walter, silver	1
Sheets	25	Water cooler	1
Stepladder	1	Ice-cream freezer, one gallon	1
Saw, meat	1		

Equipment in residence of Major Sibert, Culebra.

Basins, enameled wash	2	Dippers	2
Basins, large, granite	4	Decanters	2
Baskets:		Dishes:	
Waste	1	Small pickle	4
Clothes	2	Fruit	2
Beater, egg	1	Butter	1
Bowls:		Earthenware baking	6
Finger	13	Dipper, large	1
Punch	2	Freezer, 4-quart, ice cream	1
Large	4	Forks:	
Small	4	Small table	12
Boards:		Large table	12
Bread	1	Carving	12
Wash	2	Glasses:	
Broiler, steak	1	Water	36
Bowl, china	1	Sherry	24
Boiler:		Punch	24
Wash, copper-bottom	1	Champagne	60
Rice	1	Griddle, cake	1
Buckets, galvanized iron	5	Grater, nutmeg	1
Cuspidors	5	Grinder, meat	1
Collanders	3	Iron:	
Cups, large, tin	5	Waffle	1
Corkscrew	1	Flat	4
Cleaver	1	Knife:	
Carving set	1	14-inch	1
Can openers	2	Bread	1
Coolers, water, No. 3	2		

Equipment in residence of Major Sibert, Culebra—Continued.

Knife—Continued.					
Carving	12	Plates, pie	12		
Small table	12	Pin, roller	1		
Large table	12	Pick, ice	1		
Kettle:		Rack, roller-towel	2		
6-quart	1	Shakers:			
1-gallon	1	Salt	5		
Ladles, assorted sizes	6	Pepper	5		
Matting	150	Shovel, small	1		
Masher, potato	1	Strainers	6		
Pots:		Strainers, soup	2		
2-gallon	1	Skimmers	2		
2-quart coffee	1	Sieve, flour	1		
2-quart tea	1	Stands, iron	2		
4-quart tea, agate	2	Saw, meat	1		
Pans:		Steel, butcher	1		
Dish	1	Screwdriver	1		
Baking	2	Spoons:			
Sauce	6	Kitchen	6		
Pudding, 6-quart	6	Basting, retinned	6		
Egg frying	2	Dessert	24		
Egg frying, 24 by 18	2	Soup	12		
Frying, 10½ by 2½	3	Table	12		
Pitchers:		Wooden	1		
Glass	3	Turner:			
China	4	Cake	1		
Agate	2	Egg	2		
Glass syrup	1	Toasters, bread	2		
		Vases, flower	6		

EXHIBIT A.—Isthmian Canal Commission—Statement of employees whose salaries are paid in part by other Departments of the Government.

	Fiscal year 1907.		
	Isthmian Canal Commission.	Other Departments.	Total.
<i>Paid in part by Army Department.</i>			
Lieut. Col. George W. Goethals, Chairman	\$3,544.43	\$1,288.89	\$4,833.32
Maj. D. D. Gaillard, Commissioner	3,354.17	1,118.06	4,472.23
Maj. Wm. L. Sibert, Commissioner	3,237.50	1,079.17	4,316.67
Gen. P. C. Hains, Commissioner ^a	2,531.25	3,068.75	5,625.00
Maj. Chester Harding, Division Engineer ^b			
Maj. Edgar Jadwin, Division Engineer ^c			
Lieut. Fred Mears, Assistant Engineer ^d	624.66	1,466.94	2,091.60
Lieut. S. S. Ross, Lieutenant of Police	833.92	1,650.00	2,483.92
Lieut. R. E. Wood, Assistant Manager Department Labor, Quarters, and Subsistence	2,046.74	1,920.00	3,966.74
Col. W. C. Gorgas, Commissioner	4,766.73	4,500.00	9,266.73
Maj. Jno. L. Phillips, Superintendent Ancon Hospital	3,334.70	3,500.00	6,834.70
Maj. C. C. McCulloch, Executive Secretary Sanitary Department	412.50	783.33	1,195.83
Capt. Geo. M. Crafton, Physician	951.51	1,963.00	2,934.51
Capt. Thos. C. Lyster, Physician	1,987.40	2,200.00	4,187.40
Mr. Robt. E. Noble, General Inspector ^b			
Lieut. Alex. Murray, Physician	359.97	768.88	1,128.85
<i>Paid in part by Navy Department.</i>			
Admiral M. R. Endicott, Commissioner ^a	960.00	4,665.00	5,625.00
Mr. H. H. Rousseau, Commissioner ^c	3,162.51	959.73	4,122.24
Mr. H. C. Curl, Superintendent Colon Hospital	1,241.74	1,875.00	3,116.47
Dr. Jas. F. Leys, Superintendent Colon Hospital	701.39	1,309.02	2,010.41
Dr. Francis M. Shook, Physician	144.23	288.45	432.68

^a Resigned February 28, 1907.^b Appointed July 27, 1907.^c Appointed July 18, 1907.^d Transferred to Panama Railroad May 6, 1907.^e Resigned February 15, 1907.

128 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

EXHIBIT A.—Isthmian Canal Commission—Statement of employees whose salaries are paid in part by other Departments of the Government—Continued.

	Fiscal year 1907.		
	Isthmian Canal Commission.	Other Departments.	Total.
<i>Paid in part by United States Public Health and Marine-Hospital Service.</i>			
Dr. H. R. Carter, Director of Hospitals.....	\$4,150.00	\$3,500.00	\$7,650.00
Dr. J. C. Perry, Quarantine Officer.....	3,750.00	3,250.00	7,000.00
Dr. C. C. Pierce, Quarantine Officer.....	1,054.40	1,300.00	2,354.40
Total.....	43,149.75	42,499.22	85,648.97

	First quarter fiscal year 1908.		
	Isthmian Canal Commission.	Other Departments.	Total.
<i>Paid in part by Army Department.</i>			
Lieut. Col. George W. Goethals, Chairman.....	\$2,750.00	\$1,000.00	\$3,750.00
Maj. D. D. Gaillard, Commissioner.....	2,625.00	875.00	3,500.00
Maj. Wm. L. Sibert, Commissioner.....	2,625.00	875.00	3,500.00
Gen. P. C. Hains, Commissioner ^a			
Maj. Chester Harding, Division Engineer ^b	622.22	622.22	1,244.44
Maj. Edgar Jadwin, Division Engineer ^c	709.73	709.73	1,419.46
Lieut. Fred Mears, Assistant Engineer ^d			
Lieut. S. S. Ross, Lieutenant of Police.....	146.67	366.67	513.34
Lieut. R. E. Wood, Assistant Manager Department Labor, Quarters, and Subsistence.....	686.67	480.00	1,166.67
Col. W. C. Gorgas, Commissioner.....	2,652.77	1,125.00	3,777.77
Maj. John L. Phillips, Superintendent Ancon Hospital.....	875.00	875.00	1,750.00
Maj. C. C. McCulloch, Executive Secretary Sanitary Department.....	176.05	352.08	528.13
Capt. Geo. M. Crafton, Physician.....	479.72	550.00	1,029.72
Capt. Thos. C. Lyster, Physician.....	383.33	366.66	749.99
Mr. Robt. E. Noble, General Inspector ^b	287.22	574.44	861.66
Lieut. Alex Murray, Physician.....	197.88	400.00	597.88

<i>Paid in part by Navy Department.</i>			
Admiral M. R. Endicott, Commissioner ^a			
Mr. H. H. Rousseau, Commissioner ^c	2,750.00	750.00	3,500.00
Mr. H. C. Cull, Superintendent Colon Hospital.....			
Dr. Jas. F. Leys, Superintendent Colon Hospital.....	437.50	812.50	1,250.00
Dr. Francis M. Shook, Physician.....	220.00	440.00	660.00
<i>Paid in part by United States Public Health and Marine-Hospital Service.</i>			
Dr. H. R. Carter, Director of Hospitals.....	1,125.00	875.00	2,000.00
Dr. J. C. Perry, Quarantine Officer.....	937.50	812.50	1,750.00
Dr. C. C. Pierce, Quarantine Officer.....	675.85	437.50	1,113.35
Total.....	21,363.11	13,299.30	34,662.41

	Annual compensation.		
	Isthmian Canal Commission.	Other Departments.	Total.
<i>Paid in part by Army Department.</i>			
Lieut. Col. George W. Goethals, Chairman.....	\$11,000.00	\$4,000.00	\$15,000.00
Maj. D. D. Gaillard, Commissioner.....	10,500.00	3,500.00	14,000.00
Maj. Wm. L. Sibert, Commissioner.....	10,000.00	3,500.00	14,000.00
Gen. P. C. Hains, Commissioner ^a			
Maj. Chester Harding, Division Engineer ^b	3,500.00	3,500.00	7,000.00
Maj. Edgar Jadwin, Division Engineer ^c	3,500.00	3,500.00	7,000.00
Lieut. Fred Mears, Assistant Engineer ^d			
Lieut. S. S. Ross, Lieutenant of Police.....	850.00	1,650.00	2,500.00
Lieut. R. E. Wood, Assistant Manager Department Labor, Quarters, and Subsistence.....	2,080.00	1,920.00	4,000.00

^a Resigned February 28, 1907.

^b Appointed July 27, 1907.

^c Appointed July 18, 1907.

^d Transferred to Panama Railroad May 6, 1907.

^e Resigned February 15, 1907.

EXHIBIT A.—Isthmian Canal Commission—Statement of employees whose salaries are paid in part by other Departments of the Government—Continued.

	Annual compensation.		
	Isthmian Canal Commission.	Other Departments.	Total.
<i>Paid in part by Army Department—Continued.</i>			
Col. W. C. Gorgas, Commissioner.....	\$9,500.00	\$4,500.00	\$14,000.00
Maj. Jno. L. Phillips, Superintendent Ancon Hospital.....	3,500.00	3,500.00	7,000.00
Maj. C. C. McCulloch, Executive Secretary Sanitary Department.....	1,625.00	3,250.00	4,875.00
Capt. Geo. M. Crafton, Physician.....	2,200.00	2,200.00	4,400.00
Capt. Thos. C. Lyster, Physician.....	2,300.00	2,200.00	4,500.00
Mr. Robt. E. Noble, General Inspector ^b	1,100.00	2,200.00	3,300.00
Lieut. Alex Murray, Physician.....	800.00	1,600.00	2,400.00
<i>Paid in part by Navy Department.</i>			
Admiral M. R. Endicott, Commissioner ^a			
Mr. H. H. Rousseau, Commissioner ^c	11,000.00	3,000.00	14,000.00
Mr. H. C. Curl, Superintendent Colon Hospital.....			
Dr. Jas. F. Leys, Superintendent Colon Hospital.....	1,750.00	3,250.00	5,000.00
Dr. Francis M. Shook, Physician.....	880.00	1,700.00	2,640.00
<i>Paid in part by United States Public Health and Marine-Hospital Service.</i>			
Dr. H. R. Carter, Director of Hospitals.....	4,500.00	3,500.00	8,000.00
Dr. J. C. Perry, Quarantine Officer.....	3,750.00	3,250.00	7,000.00
Dr. C. C. Pierce, Quarantine Officer.....	2,200.00	2,200.00	4,400.00
Total	87,035.00	57,980.00	145,015.00

EMPIRE, CANAL ZONE, November 9, 1907.

^a Resigned February 28, 1907.

^b Appointed July 27, 1907.

^c Appointed July 18, 1907.

^d Transferred to Panama Railroad May 6, 1907.

^e Resigned February 15, 1907.

STATEMENT SHOWING COMPENSATION PAID BY THE ISTHMIAN CANAL COMMISSION TO EMPLOYEES ON THE ISTHMUS, AND ALSO THE COMPENSATION IN THE UNITED STATES, AT THE TIMES DESIGNATED, IN CERTAIN TYPICAL POSITIONS, AND THE PERCENTAGE OF INCREASE OF THE ISTHMIAN RATES OVER THE GIVEN UNITED STATES RATES.

TABLE A.—Isthmian Canal Commission rate and the general average compensation throughout the United States, as shown by the statistics of the Bureau of Labor as of December, 1905. For the purposes of this comparison 10 per cent is added to the latter rate, as it is understood that since the time stated there has been such advance in the compensation of these positions.

HOURLY RATE.

Position.	Isthmian.	United States general average.	United States general average, + 10 per cent.	Increase for Isthmian over latter.	Percentage of increase.
Blacksmith (railroad).....	\$0.65	\$0.3028	\$0.3331	\$0.3169	95
Boilermaker (railroad).....	.65	.3210	.3530	.2969	84
Carpenter (house).....	.65	.3773	.4150	.2350	57
Machinist (railroad).....	.65	.3101	.3411	.3069	90
Molder (railroad).....	.65	.3127	.3440	.3060	89
Painter (house).....	.65	.3642	.4006	.2492	62
Plumber.....	.75	.4012	.4403	.2097	36

TABLE B.—Isthmian Canal Commission rate and the general average compensation throughout the United States, as compiled by the Interstate Commerce Commission for the year ending June 30, 1905, with 10 per cent increase added to the latter rates. The compilation of the Interstate Commerce Commission, from which such average compensations are taken, bases the calculations on the total payments made to a given class of employees and divides that sum by the number of days' service of all such employees during the period. Thus, the average given does not contemplate the actual number of employees rendering the service, but it is stated that such average is the most satisfactory and more nearly accurate for comparative purposes which may be obtained.

DAILY RATE.

Position.	Isthmian.	United States general average.	United States general average, +10 per cent.	Increase for Isthmian over latter.	Percentage of increase.
Conductor.....	\$6.54	\$3.50	\$3.85	\$2.69	70
Locomotive Engineer.....	6.93	4.12	4.53	2.40	53
Locomotive Fireman.....	3.04	2.38	2.62	.42	16
Railroad Machinist.....	5.20	2.65	2.92	2.28	78
Trainman.....	3.85	2.31	2.54	1.31	52

TABLE C.—Isthmian Canal Commission on monthly rate and monthly compensation paid by the O'Rourke Engineering Construction Co., New York, J. G. White & Co., New York, MacArthur Bros. Co., Chicago, Ill., and Wm. J. Oliver, Knoxville, Tenn., and the general average of the four companies. In determining the rates paid by the latter company in positions where it furnishes board to employees, \$27 per month, the Isthmian Canal Commission's rate, has been arbitrarily added. Computed on basis of twenty-six working days of ten hours each per month.

Position.	Isthmian.	O'Rourke.			White.			MacArthur.		
	Rate.	Rate.	Increase for Isthmus.	Per cent of increase.	Rate.	Increase for Isthmus.	Per cent of increase.	Rate.	Increase for Isthmus.	Per cent of increase.
Powderman.....	\$125.00	\$65	\$60.00	92	.....	.....	.....	\$52.00	\$73.00	140
Steam-shovel Craneman.....	185.00	90	95.00	106	\$100	\$85.00	85	100.00	85.00	85
Steam-shovel Engineer.....	210.00	150	60.00	40	150	60.00	40	150.00	60.00	40
Steam-shovel Fireman.....	83.33	65	18.33	28	60	23.33	39	67.50	15.83	23

Position.	Isthmian.	Oliver.			Average.		
	Rate.	Rate.	Increase for Isthmus.	Per cent of increase.	Rate	Increase for Isthmus.	Per cent of increase.
Powderman.....	\$125.00	\$105	\$20.00	19	\$74.00	\$51.00	69
Steam-shovel Craneman.....	185.00	102	83.00	81	96.00	87.00	89
Steam-shovel Engineer.....	210.00	152	58.00	38	150.50	59.50	39
Steam-shovel Fireman.....	83.33	39	44.33	114	57.88	25.45	44

NOTE.—All employees of the Isthmian Canal Commission are also given free (1) furnished quarters, (2) hospital and medical attendance, (3) fuel and light, (4) after six months' service furnished family quarters, if available, (5) thirty days' injury leave, with pay, in case of accident, and (a) hourly employees are paid for a full working day of eight hours on legal holidays, as well as time and a half for overtime, the latter being paid on holidays additional, (b) monthly employees are granted six weeks' leave of absence with pay, and entitled to an additional thirty days' sick leave in case of illness in each year's service, and (c) hourly employees will soon be granted the additional thirty days' sick leave in case of illness, which now obtains for monthly employees.

NOTE.—For the above 16 positions the average percentage of increase of the Isthmian flat-wage rate is 64 per cent.

The following comparisons, Tables D, E, and F, are made after reducing the allowances to employees on the Isthmus for furnished quarters, fuel, light, etc., as enumerated in the note under Table C, to a money basis, which for the purposes of comparison may be estimated at 20 per cent of their wage. In the past the Commission has allowed a commutation of 15 per cent of an employee's salary in lieu of quarters, when the same were not available. The 20 per cent mentioned does not include the annual, sick, or injury leave which employees receive with pay under certain conditions.

TABLE D (based on Table A).—*Isthmian Canal Commission rate and the general compensation throughout the United States, as shown by the statistics of the Bureau of Labor as of December, 1905, with 10 per cent added to the latter rate for increase in wages since 1905, and 20 per cent added to the Isthmian Canal Commission rate for furnished quarters, fuel, light, etc., given employees, as explained above.*

HOURLY RATE.

Position.	Isthmian.		United States general average.	United States general average, plus 10 per cent.	Increase for Isthmian plus the 20 per cent over latter.	Percentage of increase.
	Rate.	Plus 20 per cent.				
Blacksmith (railroad).....	\$0.65	\$0.78	\$0.3028	\$0.3331	\$0.4469	134
Boilermaker (railroad).....	.65	.78	.3210	.3531	.4269	121
Carpenter (house).....	.65	.78	.3773	.4150	.3650	88
Machinist (railroad).....	.65	.78	.3101	.3411	.4389	129
Molder (railroad).....	.65	.78	.3127	.3440	.4360	127
Painter (house).....	.65	.78	.3642	.4006	.3794	95
Plumber.....	.75	.90	.4912	.5403	.3597	67

TABLE E (based on Table B).—*Isthmian Canal Commission rate and the general average compensation throughout the United States, as compiled by the Interstate Commerce Commission for the year ending June 30, 1905, with 10 per cent added to the latter rate for increase in wages, and 20 per cent to the Isthmian Canal Commission rate for furnished quarters, fuel, light, etc., given employees, as explained above.*

DAILY RATE.

Position.	Isthmian.		United States general average.	United States general average, plus 10 per cent.	Increase for Isthmian plus the 20 per cent over latter.	Percentage of increase.
	Rate.	Plus 20 per cent.				
Conductor.....	\$6.54	\$7.848	\$3.50	\$3.85	\$3.998	104
Locomotive Engineer.....	6.93	8.316	4.12	4.53	3.786	84
Locomotive Fireman.....	3.04	3.648	2.38	2.62	1.028	39
Railroad Machinist.....	5.20	6.24	2.65	2.92	3.32	114
Trainman.....	3.85	4.62	2.31	2.54	2.08	82

* Mostly colored men employed on the Isthmus.

132 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

TABLE F (based on Table C).—Isthmian Canal Commission monthly rate and monthly compensation paid by the O'Rourke Engineering Construction Company, New York; J. G. White & Co., New York; MacArthur Brothers Company, Chicago, Ill.; William J. Oliver, Knoxville, Tenn., and the general average of the four companies, with 20 per cent added to the Isthmian Canal Commission rate for furnished quarters, fuel, light, etc., given employees, as explained above. In determining the rate paid by William J. Oliver in positions where he furnishes board to employees, \$27 per month, the Isthmian Canal Commission rate, has been arbitrarily added, computed on basis of twenty-six working days of ten hours each per month.

Position.	Isthmian.			O'Rourke.			White.			MacArthur.		
	Rate.	Plus 20 per cent.		Rate.	Increase for Isthmian.	Per cent of increase.	Rate.	Increase for Isthmian.	Per cent of increase.	Rate.	Increase for Isthmian.	Per cent of increase.
Powder Man.....	\$125.00	\$150	\$65	\$85	131					\$52.00	\$98.00	188
Steam-shovel Crane Man.....	185.00	222	90	132	147		\$100	\$122	122	100.00	122.00	122
Steam-shovel Engineer.....	210.00	252	150	102	68	150	102	68	150.00	102.00	68	68
Steam-shovel Fireman.....	83.33	100	65	35	54	60	40	67	67.50	32.50	48	48

Position.	Isthmian.			Oliver.			Average.		
	Rate.	Plus 20 per cent.		Rate.	Increase for Isthmian.	Per cent of increase.	Rate.	Increase for Isthmian.	Per cent of increase.
Powder Man.....	\$125.00	\$150	\$105	\$45	43		\$74.00	\$76.00	103
Steam-shovel Crane Man.....	185.00	222	102	120	118		98.00	124.00	127
Steam-shovel Engineer.....	210.00	252	152	100	66		150.50	101.50	67
Steam-shovel Fireman.....	83.33	100	39	61	156		57.88	42.12	73

NOTE.—For the above 16 positions the average percentage of increase of the Isthmian rate plus 20 per cent for furnished quarters, fuel, light, etc., is 97 per cent.

This is a comparative statement of the wages paid to Steam-shovel Cranemen, Engineers, and Firemen on the Panama Canal and in the United States of America.

[Table prepared by T. J. Dolan, General Secretary-Treasurer, International Brotherhood of Steam-shovel and Dredge Men.]

Position.	Isthmian rate.	Lantry Sharp, Kansas City.			Shippy & Outzen, Sherard, Miss.			J. G. White, New York.		
		Rate.	Increase for Isthmian.	Per cent of increase.	Rate.	Increase for Isthmian.	Per cent of increase.	Rate.	Increase for Isthmian.	Per cent of increase.
Steam-shovel Craneman.....	\$185.00	\$100	\$85.00	85	\$125	\$60.00	48	\$100	\$85.00	85
Steam-shovel Engineer.....	210.00	150	60.00	40	200	10.00	5	150	60.00	40
Steam-shovel Fireman.....	83.33	75	8.33	11.11	95	11.67	12.3	60	23.33	30

Position.	Isthmian rate.	MacArthur Bros., Chicago.			W. J. Oliver, Knoxville, Tenn.			M. P. Byrnes Commission Co., Chicago.		
		Rate.	Increase for Isthmian.	Per cent of increase.	Rate.	Increase for Isthmian.	Per cent of increase.	Rate.	Increase for Isthmian.	Per cent of increase.
Steam-shovel Craneman.....	\$185.00	\$100.00	\$85.00	85	\$120	\$65.00	54	\$110	\$75.00	68
Steam-shovel Engineer.....	210.00	150.00	60.00	40	170	40.00	23.5	165	45.00	27
Steam-shovel Fireman.....	83.33	67.50	15.83	23	59	24.33	41	75	8.33	11.11

Position.	Isthmian rate.	Erickson & Peterson, San Francisco.			John Marsh, Cleveland, Ohio.			The Mesaba Iron Range.		
		Rate.	Increase for Isthmus.	Per cent of increase.	Rate.	Increase for Isthmus.	Per cent of increase.	Rate.	Increase for Isthmus.	Per cent of increase.
Steam-shovel Craneman	\$185.00	\$120	\$65.00	54	\$100	\$85.00	85	\$115	\$70.00	61
Steam-shovel Engineer	210.00	170	40.00	23.5	150	60.00	40	165	45.00	27
Steam-shovel Fireman	83.33	65	18.33	28	70	13.33	27	66	18.33	28

Position.	Isthmian rate.	Kirkpatrick Bros. & Collins, Omaha, Nebr.			F. A. Marshall, Erie Canal, Rochester, N. Y.			Alaska rates.		
		Rate.	Increase for Isthmus.	Per cent of increase.	Rate.	Increase for Isthmus.	Per cent of increase.	Rate.	Increase for Isthmus.	Per cent of increase.
Steam-shovel Craneman	\$185.00	\$100	\$85.00	85	\$120	\$65.00	54	\$250	\$65.00	26
Steam-shovel Engineer	210.00	150	60.00	40	170	40.00	23.5	300	90.00	30
Steam-shovel Fireman	83.33	70	13.33	19	80	3.33	4	150	66.67	67

Position.	Isthmian rate.	Averages.			Average, leaving out Alaska rates.		
		Rate.	Increase for Isthmus.	Per cent of increase.	Rate.	Increase for Isthmus.	Per cent of increase.
Steam-shovel Craneman	\$185.00	\$121.66	\$63.34	52	\$110	\$75.00	68
Steam-shovel Engineer	210.00	174.16	35.84	20	163	47.00	28
Steam-shovel Fireman	83.33	77.62	5.71	7	71	12.33	17

In the above scale we have not included the New York scale of wage, which is \$174 for engineers and \$124 for cranimen.

All of above firms supply lodging, fuel, and light when asked to do so.

These rates include board.

W. J. OLIVER.
ERICKSON & PETERSON.
F. A. MESSALLA.
SHIPPY & OUTZEN.

ALLOWANCES TO EMPLOYEES IN ADDITION TO SALARY.

Married men.

Are furnished family quarters, furniture, fuel, light, and water. At points where there are sterilizers, distilled water is delivered daily, free of charge. Supplies are delivered free. Each employee is allowed one pass per month.

The value of these allowances varies as follows: 1. Employees receiving under \$200 per month, quarters represents a value of \$1,500; furniture, \$140; fuel and delivery, \$2 per month; light, \$4.50 per month.

2. Employees receiving \$200 to \$300 per month, quarters represents a value of \$2,430; other allowances similar to No. 1.

3. Employees receiving \$300 to \$400 per month, quarters represents a value of \$3,720; light, \$7.50 per month; other allowances similar to No. 1.

4. Employees receiving \$400 and over, quarters represents a value of \$4,345 to \$5,860; furniture, \$330; fuel, \$4 per month; light, \$12 per month.

Bachelors.

Quarters represents a value of \$200 per man; furniture, \$50 per man (actually less); light, 50 cents per month; janitor service, \$1.25 per month.

One pass per month is allowed each employee. All bachelors are given practically the same allowances. Those receiving \$200 or more usually have a room to themselves, and their quarters would represent a value of \$400. Water is furnished in houses.

134 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

STATEMENT EMBRACING COMPENSATION AND DUTIES OF ALL CHIEF CLERKS IN THE DEPARTMENT OF CONSTRUCTION AND ENGINEERING.

M. B. De Putron, Chief Clerk to the Chairman and Chief Engineer and President of the Panama Railroad, salary----- \$3, 600

Has charge of all correspondence, files for both correspondence and requisitions, transportation for all employees for the Isthmian Canal Commission. Fifteen employees are under his direction and supervision.

Max Dyer, Chief Clerk to the Chief of Division of Material and Supplies, salary ----- 3, 300

In charge of handling all correspondence, requisitions, and invoices for all supplies purchased for the Commission. Sixty-seven men are under his direction and supervision.

S. J. Kennedy, Chief Clerk to the Division Engineer, Culebra Division, salary ----- 3, 000

In charge of all correspondence, files, time rolls, cost and material reports, inventories and property returns, accounting and periodical reports. Sixty-three employees are under his direction and control.

S. C. Klauber, Chief Clerk of the Department of Labor, Quarters, and Subsistence, salary----- 3, 000

Has entire charge of handling all correspondence, including correspondence in connection with transportation, quarters, and general matters affecting hotels and mess halls. Approves all general orders covering leaves of absence, resignations, pay rolls, etc. Thirty-six men are under his direction and supervision.

F. W. Doty, Chief Clerk to Superintendent of Motive Power and Machinery, salary ----- 2, 700

Has charge of all clerical work of this division, including clerical forces and the mechanical division of the Panama Railroad to the number of 85 employees. Also is in charge of pay rolls, material accounts, and statistics of cost, in connection with the work of this division.

E. C. McFarland, Chief Clerk to the Division Engineer, Division of Municipal Engineering, salary----- 2, 400

Has supervision over all correspondence, pay rolls, and timekeeping work, signs and approves all store invoices and pay rolls. Has under his immediate charge 18 employees.

D. W. McCormack, Chief Clerk to the Division Engineer, Division of Meteorology and River Hydraulics, salary----- 2, 400

In charge of pay rolls and timekeeping; handles all correspondence and compiles all reports in connection with the work of this division. Three men are under his direction and supervision.

J. H. Barbour, Chief Clerk to the Master Builder, salary----- 2, 400

In charge of all correspondence, preparation of statistics, and issues authority for all work in connection with the Building and Construction Division upon proper approval. Ninety-five men are employed under his direction and supervision.

C. L. McPherson, Chief Clerk to the Division Engineer, Colon Dredging Division, salary ----- 2, 100

In charge of correspondence, files, requisitions, property returns, accounting, timekeeping, and responsible for compilation of periodical reports. Supervision and direction over 14 employees.

B. L. Jacobson, Chief Clerk to the Office Engineer, salary----- 2, 100

In charge of the preparation of reports on cost keeping covering the different items of construction work. Is engaged in work connected with engineering records and such other work may be assigned to him by the Office Engineer.

E. A. Le May, Chief Clerk to Division Engineer in charge of La Boca locks and dams, salary-----	\$2,400
In charge of correspondence, files, requisitions, property returns, material reports, and other work in connection with office organization.	
D. V. Stratton, Chief Clerk to the Division Engineer in charge of La Boca Dredging Division, salary-----	2,100
Handles all correspondence, files, requisitions, and other work of similar nature in connection with this division office. Has charge of 10 men.	
W. C. Haskins, Chief Clerk in the Division of Material and Supplies salary-----	2,100
Is accountable for the output of the stationery and printing plant of this division at Panama. Has charge of 4 men.	
E. P. Thompson, Chief Clerk to the Division Engineer in charge of Gatun locks and dams, salary-----	2,100
Duties similar to those of Chief Clerks of other divisions.	

LETTER TO THE SECRETARY OF WAR.

CULEBRA, CANAL ZONE, July 30, 1907.

Hon. WM. H. TAFT,
Secretary of War, Washington, D. C.

SIR: I have the honor to submit the following report on the question whether the construction of the Panama Canal should be done by hired labor under Government supervision or by contractors.

There is no question that in the majority of cases in the United States work is contracted because it can be done cheaper by that method than any other. This is generally due to the fact that the contractor has on hand a construction plant which can be more cheaply hired than purchased anew. Where, in any particular case, either from the nature of the work or its location, the contractor must purchase machinery and appliances which, so far as he can foresee, will be practically useless on the completion of the work, or where the party having the work done can make use of the plant subsequent to its completion, the advantages of the contract system disappear.

As illustrative, the Government secured cheaper, and incidentally better, concrete work in its fortifications than was obtained by contract. The batteries are heavy concrete constructions requiring machinery for which the contractor could find little, if any, subsequent use. For the same reason the Government, in many cases, especially where the work was removed from commercial centers, was able to construct locks and dams more cheaply than could a contractor. In some instances, to overcome a combination of contractors, the Government purchased the necessary plant and accomplished results more cheaply than by contract. This is notably true in dredging operations, as recent legislation on the subject clearly indicates. It is not uncommon, in the execution of comparatively large projects, that the contractors have failed and the Government carried successfully to completion, by hired labor, the work undertaken by the contractor. Notable instances of the Government successfully completing work are the State, War, and Navy Department building and the Congressional Library, Washington, D. C.

Omitting profits derived from subsistence and general stores, and assuming the hours of labor the same in both cases, it stands to reason that the Government, when warranted in making the necessary outlay for plant, can do work cheaper than a contractor, for no question of profits enters into consideration.

The question of Government work versus contract in connection with the Panama Canal has been discussed, and a conclusion reached in favor of the latter method, because of certain stated advantages that are claimed to result. To those familiar with river and harbor improvements, erection of public buildings, light-houses, etc., and with contracts under the Government, the advantages set forth are not so apparent or real.

It is claimed that contractors have under their control and at their disposal trained labor forces, and that by a combination of such forces, through an asso-

clation of contractors, team work will result, thereby accomplishing the desired end more quickly. As a matter of fact, conditions seldom enable a contractor to maintain intact his entire organization on one piece of work for transfer to another. The completion of a job means the disbanding of the force, and though new work may bring to him some of his old men, a new organization must in each case be perfected.

The Panama Canal presents a piece of work unprecedented in magnitude, which must be done under conditions entirely different from similar classes of work in the United States. The work naturally divides itself into dredging, dry excavation, the construction of the locks and dams, and the construction of the new Panama Railroad. There is no contractor or syndicate of contractors that by any combination could bring to the Isthmus an organization ready for team work on any of these units. While it is possible for several contractors to combine forces, assuming that a sufficient number of men can be gotten together in that way, there still remains the necessity for whipping this force into shape in order to secure an organization that will produce the team work so advantageous in the accomplishment of results.

From the United States the supply of labor is the same whether the work be done by contract or by the Government, and the character of the labor must be the same so long as work is plentiful and the dread of the Tropics will deter men from seeking work here in preference, and this is equally applicable to the contractor and the Government. An adequate supply of labor from the United States is not possible, and recourse must be had to securing it abroad. The records here show that no contractor can even attempt to recruit labor in the West Indies, and that great opposition will develop to any recruiting by authorized agents of the Commission if the labor procured is turned over to contractors. These island governments can not be blamed for their hostility toward the latter, because of their experience under the French, which left an indelible impression throughout the whole West Indies. A representative of the Italian Government has recommended to the authorities that Italian labor be permitted here for employment under the Commission, but he is not favorably inclined to the control of such labor being vested with a contractor.

It is true that in some cases the contractor may have an acquaintance which will enable him to secure suitable men more easily than a Government agent, and, again, he may bring to a work a greater experience, but so far as the most important parts of the Panama Canal work are concerned, this advantage is not apparent. In any case the knowledge of the specialist in the particular work that is to be done is the element that will accomplish the most satisfactory results, and so far as dredging and lock and dam construction are concerned, the Government's experience has been, if not greater, at least as extensive, as that of any contractor or association of contractors that can be secured in the United States. For these units of the work the Government's acquaintance is equally extensive, and experienced men can be drawn from the engineering force of the Government. These three classes of work form the most important parts of the Panama Canal, and in their prosecution the Government has the advantage. So far as relates to excavation in the dry by steam shovel and cars, the advantage ordinarily would be with the contractors, yet the Government has secured and maintained an organization on the Isthmus that can not be surpassed by any organization, and, it is claimed, has perfected this organization in as short a time as, under the circumstances, could have been done by any association of contractors.

When the Government does work in the United States, the wage scale is determined by the amount paid for the same class of labor in the immediate vicinity. There is no pressure brought to bear on higher authority for any increase over the salaries or amounts offered, and strikes are unknown. It is true that conditions on the Isthmus are such that demands for increase in pay are frequent, and that to accomplish what was denied by those immediately in charge of the work recourse has been had to higher authority.

Conditions on the Isthmus are peculiar. It is contended, apparently on reasonable grounds, that service in the Tropics saps the energy, and that a man is incapable, after a time, of performing the same amount of work that he would be able to accomplish had he spent the same period in a cooler climate. This creates a desire to accumulate sufficient means to avoid the necessity of relatively harder work on the return to the United States, and is a question that a contractor would be obliged to face as well as the United States. In some respects the Government is in a position to handle the situation more satisfactorily than a contractor, as was plainly shown by the trouble with the steam-shovel men in May last. It was evident that, based upon certain repre-

sentations made to the men when they first came to the Isthmus, the impression was given that eventually their pay would be \$300 a month. A contractor could not have removed this impression, and had he refused to consider the demand a strike would have been declared, and the prompt settlement of the matter without personal ill feeling or without damage to property, as was done under Government control, could not have been so successfully accomplished by a contractor under conditions as they actually existed.

The wage scale on the Isthmus is practically adopted, and a contractor would be obliged to maintain it. Under the recent decision that all questions of pay are to be left with the Commission, this body is placed on as secure a basis, relative to the constant demands for an increase, as any association of contractors.

Experience has shown that continuity of construction is more apt to result in cases where the Government undertakes the task than when it is turned over to contractors. This can be easily verified by an examination of the records (the number of failing contractors) to be found in the office of the chief of engineers. For all work done by hired labor, continuity is merely a question of continuity of appropriations. It is true that continuity may be equally insured by turning the Panama Canal work over to contractors, if the contract is so drawn that practically all risks are assumed by the Government; but why this should be done, at a considerable increase in cost, is not apparent.

To any one who has had experience with contracts on Government work the claim that letting a piece of work by contract is a reasonable assurance that it will be completed in a definite time is utterly untenable. On public works, including public buildings, it may safely be said that in the majority of cases the time limit is exceeded. An examination of the contracts for material to be supplied the Isthmian Canal, so far as the time limits proposed by the contractors are concerned, will clearly show that there is no assurance of completion in a definite time of any contract, even though the contractors themselves, when fully cognizant of all the conditions surrounding the work, fix the time for the completion or delivery. It certainly can not be supposed, therefore, that in an enervating climate like that on the Isthmus, and with labor below that in the United States in efficiency, this time-failing record for contract work would be changed.

Reasonable definiteness in cost is usually obtained by contract when based on unit prices and when all conditions of the work are fully known in advance, yet these unit prices are as a rule higher than would be the cost to the Government should the latter possess the necessary plant. It is true that the contract which was proposed for the construction of the Canal provided for the determination of time and cost by a Board of Engineers, but the conclusions on these points could be upset should conditions be found or met with unforeseen by that board. Experience on all works, even those based on more definite data than can be presented to contractors for the Isthmian Canal work, shows that the unexpected is always happening, and this seems especially true of the work here.

There is no question that there are a number of people who will always believe and contend that any piece of work done by the Government could have been done as well and more cheaply if undertaken by contract, but an examination of the records will generally disprove such a contention. On the other hand, there is an equally large class who will contend to the contrary and claim, after the completion of the work, that the reverse is true.

Work heretofore has been conducted on a nonpartisan basis. The thinking class of American people fully realize the necessity for the Panama Canal and its early completion, and it is generally realized that this can be accomplished only by the application of business and nonpartisan methods. This has generally been the case with all Government work wherever undertaken, and the fact that the continuation of this policy may not continue along the same lines is hardly an argument strong enough to weigh in favor of contract work.

While it has been noted that contractors can usually do work cheaper because of plant already on hand, thereby saving the cost of new machinery, and because of greater familiarity with the class of work on which they are engaged, there are at times additional ways for securing the same results, namely—

- (a) By paying lower wages.
- (b) By working their men longer hours.
- (c) By requiring a greater amount of work per hour from the men.
- (d) By giving them less expensive rations and quarters, in case employees are fed and quartered.

On the Panama Canal a contractor can not anticipate profits from any of these sources. The work already done and in progress has fixed the wage scale, and a contractor would be unable to retain labor that might be turned over to him, nor could he secure additional men, at less salary than already paid by the Commission.

The Government is now working foreign labor as many hours per day as is practicable in this climate, so that the contractor could gain nothing more than the Government has already acquired. So far as American labor is concerned, the eight-hour law is applicable, and so long as it remains in force it must be as binding on the contractor as on the Government.

It is questioned whether he could get more work out of the laborers on the Isthmus than they now perform for the Commission. This is a question dependent entirely upon the character of foremen employed, and he would have exactly the same class of men in this position, since most of the foremen now employed have previously been with contractors and therefore have had their principal training on contract work. Moreover, the pace set by the laborers under the Commission would fix the rate for the contractor.

Were all the work turned over to one contractor, or an association of contractors, the Commission would be obliged to maintain a supervisory force, and the feeding and quartering of these employees would determine the demands that the contractor's men would make upon him for accommodations. Moreover, a number of the dwellings that are now occupied by Commission employees would be turned over for occupancy by contractor's men, and any additional force would expect the same accommodations. Trouble would result, therefore, in case the contractor fed his employees on less expensive rations or quartered them less comfortably than the Commission. No saving could be made, and the Government would be obliged to foot the bills.

The Panama Canal work is naturally divided into—

(1) Excavation in the dry by steam shovels, including all of the Culebra Division and part of the Chagres Division. The construction of drainage and diversion channels would come under this heading.

(2) Excavation by dredges on the Colon and La Boca divisions and on part of the Chagres Division.

(3) The constructions of the dams.

(4) The construction of the new Panama Railroad.

(5) The construction of the terminal facilities, harbor basins, and breakwaters, if any.

(6) The construction of locks, gates, and spillways.

The excavation of the Culebra Division has already been undertaken by hired labor; practically all of the plant required for this work has been secured and paid for; a complete and thoroughly efficient organization for the same has been built up, and the Government is not hampered in any way in procuring the necessary labor for filling vacancies that arise. In the organization that has been perfected, the higher grade men were formerly employed by contracting firms, and some of the number have been successful contractors themselves. The conduct of this work, therefore, has been along the lines usually followed by contractors. Under the circumstances no advantage would accrue to the United States by letting this piece of work to contractors, but, on the contrary, there would be not only additional expense but a feeling of unrest and dissatisfaction engendered among the present employees materially affecting efficiency. Under existing conditions, therefore, contract work can not be recommended for the Culebra Division.

The Government has on hand, or under contract, all the dredges that will be needed for excavating such parts of the Canal prism as can be most economically performed by this class of machinery. Experience in the United States has demonstrated that with such a plant in its possession, no contractor or association of contractors can do the work as economically as can the Government. The Government agents are as familiar with this class of work as the contractors, and the necessary dredge crews can be obtained without difficulty. So far, therefore, as dredging is concerned, the Government should do the work, and contracts for the same can not be recommended.

The great problem in the construction of that portion of the Canal included in the Culebra Division is the disposal of the excavated material. In the main, this has been disposed of at various localities favorably situated with regard to the Cut. The systematic performance of the work and the necessity for additional material in completing other parts of the work have made it necessary to arrange for such a disposition in the future as will be most beneficial to the work in its entirety. The efficiency of the dams depend upon their having

sufficient weight and tightness to impound the water without leakage and without danger to the stability of the structures. The weighty material, or rock, is to be furnished in each instance by material from the Culebra Cut, and the tightness is to be secured by the selection of suitable material to be obtained from the products of dredging. In other words, the construction of the dams is so intimately connected both with the excavation of the Culebra Cut and the dredging, that if these two can be most economically and advantageously done by the Government rather than by contract, it naturally follows that the method adopted for the construction of the dams must be the same, namely, by hired labor under Government supervision, and not by contract.

The survey of relocation for the Panama Railroad has been completed, and it has been necessary to undertake the construction of the railroad in order to permit the removal of the present bed in the vicinity of Gatun, so that the construction of the dam at that point may be begun. The construction of the new line requires, among other things, about 1,500,000 cubic yards of excavation and about 10,500,000 cubic yards of embankments. The excess of embankments over excavation, about 9,000,000 cubic yards, is to be supplied largely if not entirely from material excavated from the Canal prism, the embankments forming dumps for the material trains. Steps have already been taken for the development of dumps which will result in the construction of a part of the new roadbed at Miraflores, Pedro Miguel, Gamboa, and Gatun, and plans have been prepared and proposals invited for a bridge across the Chagres at Gamboa. With excavation in the Culebra Division to be done by hired labor under Government supervision, with the material therefrom to be used in the construction of the Panama Railroad, the intimate relation between the two necessitates the adoption of the same method of construction, namely, hired labor under Government supervision, in the construction of the new Panama Railroad.

The regulating works and spillways of the Gatun and La Boca dams are so dependent upon and intimately connected with the construction of the dams that whichever method is adopted for the latter must be made applicable to the regulating works and spillways in order to avoid friction and difficulties that would result in case part were done by the Government and part by a contractor.

The Panama Railroad must be maintained and operated as a commercial line, and it must be utilized also for construction purposes in connection with the Culebra Cut, the reconstruction of the railroad, the construction of the dams, and, in addition, it must transport all materials entering into the construction of the Pedro Miguel locks.

The difficulties that would result from a joint use of the Panama Railroad by a contractor and the Government at the Pedro Miguel locks disappear, however, for the locks at Gatun and La Boca, since both are accessible by water. Sand can be procured along the shores of the Pacific, and it is hoped that a suitable quality in sufficient quantity can also be obtained on the Atlantic shore of the Isthmus.

The success of the lock construction depends largely upon the quality of cement used, and there is no question that the Government should furnish all the cement. No contractor or association of contractors possesses the necessary plant for handling the enormous quantities of concrete required for these structures. Subsequent to the construction of the locks the contractor could have no further use for the machinery installed, even if the payment of freight for its return to the States were warranted. If the contractor furnishes the plant the Government must pay for it in its entirety, and in addition pay interest on the amount expended for its purchase. This plant can therefore be procured more cheaply by the Government than by a contractor. As previously explained, if the Government furnishes the plant the advantage of the contract method disappears. The contractor will have greater difficulty in securing the common labor needed than will the United States. The engineering force of the Government that has in the past few years been employed in the construction of such large quantities of concrete in various forms in the United States can be drawn upon to furnish the skilled personnel necessary for concrete work here. The acquaintance with competent men for this class of work is more extended on the part of the Government than on the part of the contractor.

These considerations lead to the conclusion that the locks can be more economically and advantageously constructed by the Government than by a contractor or association of contractors.

The gates and operating machinery can, it is believed, best be constructed by contract at the proper time.

The foregoing conclusions do not cover the proposed work on the Chagres Division, or the terminal facilities, harbor basins, and breakwaters, as the surveys for the development of the amount of work and character of material involved in the Chagres Division have not yet been completed, nor have the final plans for the terminal facilities, etc., been finished.

No account has been taken of the question of sanitation, one very important to the successful prosecution and completion of work on the Canal. Proper sanitation can be maintained more easily and satisfactorily with the Government in supreme control of the work than with a contractor, and this adds an additional argument in favor of the Government doing the work itself.

The relative advantages of the contract system versus hired labor under Government supervision in the construction of the Panama Canal are very different to-day from what they were two years ago, and were different then from what they were when the work was first undertaken. To one familiar with conditions on the Isthmus, there can be no doubt at this stage of the work as to the advisability of continuing it by hired labor.

It is estimated that 80 per cent of the entire plant needed for the construction of the Canal has been purchased or contracted for. Machine shops have been erected and equipped for making all needed repairs to the machinery now on hand or still required for the work. So far, therefore, as the plant and its care and repair are concerned, the Government is better equipped to carry on the work as advantageously and economically as any contractor.

Many thousand employees have been secured and an effective working organization has been perfected, and the recruiting system put in operation is capable of furnishing more labor than can be advantageously used. The employees are well sheltered and, in general, well fed; the salaries paid are satisfactory, and the work is progressing smoothly. A change from these favorable conditions in the method of prosecuting the work would disorganize all existing conditions, and would undoubtedly increase the estimated cost and time of completing the canal.

The conclusion that the work can be done better, cheaper, and more quickly by the Government has been reached only after free and full discussion by the various members of the Commission and the higher officials connected with the construction work, and after careful consideration of all sides of the proposition.

Very respectfully,

GEO. W. GOETHALS,
Chairman and Chief Engineer.

STATEMENT OF MAJ. D. D. GAILLARD, U. S. ARMY, COMMISSIONER IN CHARGE OF THE DEPARTMENT OF EXCAVATION AND DREDGING.

The CHAIRMAN. You are one of the Isthmian Canal Commissioners?

Major GAILLARD. Yes, sir.

The CHAIRMAN. And also a Major in the Army?

Major GAILLARD. Yes, sir.

The CHAIRMAN. State, Major, what part of the work you have charge of, under Colonel Goethals.

Major GAILLARD. I have charge under the Chief Engineer of the Department of Excavation and Dredging.

SCOPE OF THE DEPARTMENT.

The CHAIRMAN. It covers what territory in the Zone?

Major GAILLARD. It extends from deep water of the Pacific to deep water of the Caribbean Sea, excepting only the excavation for the Gatun lock sites and the Sosa lock sites; clear across the line of the Canal, with these two exceptions, and below reference 40 at Pedro Miguel. At Pedro Miguel I excavate only to reference 40.

The CHAIRMAN. You mean by that, 40 feet above sea level?

Major GAILLARD. Yes, sir; and there I turn it over to Major Sibert for lock construction.

PERSONNEL OF THE DEPARTMENT.

The CHAIRMAN. How many men have you in your department?

Major GAILLARD. I have the exact figures if I could go in the office and get them. I have a little over 12,000 in the four places.

The CHAIRMAN. How many of these are clerks?

Major GAILLARD. I have the plan of organization that shows all of that. I have twelve copies in the office. That gives the entire number of the clerical force in all the departments.

Mr. MADDEN. You have 9 clerks?

Major GAILLARD. Nine for the Culebra Division.

The CHAIRMAN. Who is your Division Engineer?

Major GAILLARD. I have 4 of them. On the Culebra Division Mr. D. W. Bolich is the Division Engineer.

The CHAIRMAN. Is he the one that draws \$7,500?

Major GAILLARD. Yes, sir.

The CHAIRMAN. Is he drawing that salary now?

Major GAILLARD. Yes, sir.

The CHAIRMAN. Who is the Assistant Division Engineer?

Major GAILLARD. Mr. Louis K. Rourke.

The CHAIRMAN. He is drawing \$6,000?

Major GAILLARD. Yes, sir.

The CHAIRMAN. The Superintendent of Transportation is drawing \$5,000?

Major GAILLARD. Yes, sir.

The CHAIRMAN. Who is that?

Major GAILLARD. Mr. Jones. I can not recall his initials now. They are given on that diagram that has been sent for.

The CHAIRMAN. It is M. K. Jones. You have one Superintendent of Water Service at \$3,000?

Major GAILLARD. Yes, sir. He has charge of supplying water to all the plants in operation, but more especially to the steam shovels. They are moving all the time. Each steam shovel is connected by a pipe with the water supply as it moves. This is the organization. It answers every question asked so far [submitting blueprint diagram].

The CHAIRMAN. This is the plan of your reorganization?

Major GAILLARD. Yes, sir; with the names of all the higher employees under it and the number of men under them.

The CHAIRMAN. We will put this in as an exhibit, as part of your statement, and have it reproduced. Mr. Courts says they can have this reproduced at the Government Printing Office.

Colonel GOETHALS. They have the tracings in Washington to be reproduced for my annual report.

The CHAIRMAN. File a copy as an exhibit with the stenographer. Colonel Goethals, have you an exhibit of that kind for the different organizations?

Colonel GOETHALS. For the entire Canal, beginning at my office and going on down; the Commission and everything.

Mr. GILLET. Will that be in your annual report?

Colonel GOETHALS. That will be in the annual report.

The CHAIRMAN. We will reproduce the whole thing, then.

[See diagram showing organization of Excavation and Dredging Department at end of Colonel Goethal's testimony.]

GENERAL FOREMEN.

The CHAIRMAN. I see you have estimated for 25 general foremen at \$2,100 a year?

Major GAILLARD. Yes, sir.

The CHAIRMAN. Are these men getting that much compensation now?

Major GAILLARD. Some are; a few of them are getting a little more, and the majority are getting considerably less.

The CHAIRMAN. I am talking now of the 25 general foremen on page 36 of the bill.

Major GAILLARD. I have not got 25 general foremen at that salary now, but we are trying to get some. We have great trouble in getting suitable track foremen who are thoroughly familiar with construction work, and we have an order in the United States now which, if filled, will give that many.

The CHAIRMAN. You need that many?

Major GAILLARD. Yes, sir; if I can get the right men.

The CHAIRMAN. And you propose paying them \$2,100?

Major GAILLARD. Yes, sir; I can not get them, apparently, for less. We have not got what we need now at \$150 per month.

SUBORDINATE FOREMEN.

The CHAIRMAN. You estimate also for 75 foremen at \$1,800 each, and 55 foremen at \$1,500 each, and 35 foremen at \$1,200 each, and 12 foremen at \$1,000.

Major GAILLARD. Those numbers, except the general foremen, are increases of what we have now. They are based on an output of 10,000,000 cubic yards, which is probably in excess of what we will have this present year, and it is an increase on our present force.

The CHAIRMAN. Is the increase in the work in these different classes of foremen sufficient to justify a difference of \$300 per annum?

Major GAILLARD. I think it is. If we know nothing about a man except the general testimony, we start him in at the lower grade. I intend to have a fixed probationary period, with the consent of the Chief Engineer, and they will be tried out before they are promoted, and unless they bring absolute testimonials testifying that they are suited for a higher grade I will start them at the lower grade. I have some at \$1,000 here. The lowest paid foreman is \$83.30 a month, or \$1,000 a year.

The CHAIRMAN. In what respect do their duties differ—the duties, say, of classes 4 and 3 and 2?

Major GAILLARD. The class 4 is the best grade of track foreman. He will have charge of a certain length of track down in the cut, the best man being put on the most difficult piece of track in the rainy season, or a track on the dump, the best man being assigned to the

most difficult work. His responsibility is greater and the work more difficult than the work of the smaller paid men. He has more men under him, and his position is of greater responsibility.

Mr. MADDEN. And the reason he has more men under him is that he has greater experience and can handle more men?

Major GAILLARD. Yes, sir. We try to rate him by his efficiency and capacity to discharge more responsible duties.

Mr. MADDEN. In other words, you figure that the man who can handle 100 men is worth twice as much as the man who can handle 50 men?

Major GAILLARD. Yes; if he can handle them properly.

Colonel GOETHALS. But we do not pay on that scale.

Major GAILLARD. But that is the principle.

Mr. MADDEN. It is just on the same principle that the Chief Engineer of the Canal is worth \$15,000, whereas the laborer is only worth 60 cents a day, or something like that.

Colonel GOETHALS. That comparison I do not like to have go into the record. [Laughter.]

The CHAIRMAN. The track foremen are out all the time?

Major GAILLARD. Yes; they are out all the time, and a large proportion of them are at work every Sunday. A large proportion of them, until the tracks became better ballasted, were turned out every Sunday.

The CHAIRMAN. From the standpoint of skill and necessary experience for the duties of the track foremen, how would their duties compare with the steam-shovel men?

Major GAILLARD. I think the men named here as foremen No. 4 have duties just as onerous and responsible as those of the steam-shovel engineer.

STEAM-SHOVEL MEN.

The CHAIRMAN. What are the responsibilities of the steam-shovel men, outside of taking care of the engines?

Major GAILLARD. Skill in handling the dipper. A man who can handle a dipper full every sixteen seconds, as some of them can, is a man of skill. I should say the responsibilities would be greater with the track foreman.

Mr. MADDEN. The crane man is really the fellow who guides the dipper. He can tell which shovel is doing the most work?

Major GAILLARD. Yes; but it takes two to put one in every sixteen seconds.

The CHAIRMAN. How long would it take a steam shovel to load one of your largest flat cars, assuming that the cars were in position for loading?

Major GAILLARD. It could load it easily in the dry season in two minutes.

The CHAIRMAN. How many cubic yards?

Major GAILLARD. Twenty.

The CHAIRMAN. How many tons would that be?

Major GAILLARD. It would be about 30 tons, with stuff as wet as it is now.

The CHAIRMAN. In the dry season possibly 2,700 pounds to the cubic yard. I think that would be about right. The stuff is perfectly dry then. That is for earth. The rock would be heavier.

Mr. MADDEN. The rock would weigh about 4,500 pounds to the yard.

Major GAILLARD. He would not load rock at that rate. It would be earth.

Mr. MADDEN. Have you a general statement showing just what each steam shovel does, what it costs, what the distribution of the earth costs after it is taken out of the cut, and what the track charges are, and all that?

Major GAILLARD. Yes; we have all that in the office.

Mr. MADDEN. I would like to have that go into the record, Mr. Chairman.

Major GAILLARD. I can furnish that. I have it already prepared. Following are the statements referred to:

Performance of steam shovels and cost of excavation by these machines in the Culebra Division since December 31, 1905.

Period.	Output.	Average number of shovels.	Number of working days.	Output per day.	Output per shovel per day.	Rain-fall at Empire.	Rain-fall at Culebra.	Maximum temperature in sun at Empire.	Cost per cubic yard, exclusive of cost of plant.
1906.	<i>Cubic yds.</i>			<i>Cu. yds.</i>	<i>Cu. yds.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>° F.</i>	
January.....	120,990	12.83	26	4,653	363	1.28	1.19		\$0.9616
February.....	168,410	12.48	23	7,322	567	.57	.64		.5587
March.....	239,178	12.37	27	8,858	716	.45	1.34		.4745
April.....	213,177	12.33	24	8,882	720	11.42	8.43		.5931
May.....	194,645	12.41	27	7,209	581	7.54	7.25		.7165
June.....	207,760	14.81	26	7,991	539	6.92	8.94	123	.7540
July.....	157,093	16.64	25	6,284	378	14.61	20.26	127	.9355
August.....	244,823	16.93	27	9,068	536	11.84	12.97	132	.8107
September.....	291,452	21.33	24	12,144	568	7.41	6.22	130	.8890
October.....	325,835	22.67	27	12,068	532	3.97	8.46	128	.6658
November.....	221,642	20.46	24	9,235	459	21.05	19.19	120	.9280
December.....	278,197	22.68	25	11,128	491	8.15	9.09	108	.8102
Total.....	2,663,202	16.50	305	8,732	529	100.21	103.98	132	.7151
1907.									
January.....	566,432	31.04	26	21,786	702	.08	.00	104	.6271
February.....	636,563	39.87	23	27,676	674	.13	.49	108	.6189
March.....	813,098	43.88	25	32,524	741	.16	.08	105	.5869
April.....	877,380	44.12	26	33,745	765	.09	.04	110	.6124
May.....	987,070	31.70	26	26,426	833	6.22	7.45	118	.7891
June.....	622,653	38.28	25	24,906	651	13.53	14.74	118	.8820
July.....	766,511	43.38	26	29,461	690	9.85	9.42	118	.8977
August.....	781,298	39.70	27	28,937	729	11.28	12.82	120	.8924
September.....	749,529	38.50	24	31,230	811	10.61	10.72	123	.9194
October.....	826,457	37.63	27	30,610	813	15.44	15.27	123	

* Track material was included in current expenses for the first time in the unit cost of excavation in January, 1907. Previously it has been charged as an "arbitrary" and included in the cost of plant.

† The cost per cubic yard as given previous to July 1, 1907, did not include the material used in the repair of locomotives, steam shovels, and cars, nor did it include the cost of operating the air compressor, nor the proportionate cost of administration and general expenses of the Mechanical Department, which department makes repairs on plant for the Culebra Division. The items just enumerated comprise a fair charge against excavation and consequently have been included in the cost per cubic yard since June 30, 1907. The items enumerated above and which were included in the cost of excavation for the first time in July, 1907, amounted in that month to \$0.1535 per cubic yard. As a consequence the unit cost since July 1, 1907, appears to have increased, whereas, had the charges just enumerated been previously applied, the unit cost would be less than for the corresponding period of the previous year.

Distribution of the cost of excavation in the Culebra Division for the fiscal year commencing July 1, 1906, and ending June 30, 1907.

Comparatively little excavation had been accomplished in the Culebra Division prior to July 1, 1906, and it is difficult to compile from the records in the short time available an accurate distribution of the various items which go to make up the cost of excavation.

Beginning with the fiscal year commencing July 1, 1906, the output gradually increased and more attention was paid to distribution of the various items of cost of excavation. The total amount of excavation in the Culebra Division for the fiscal year ending June 30, 1907, was 5,768,014 cubic yards, of which 5,724,653 cubic yards were removed by steam shovels. The cost of the various items of expense connected with steam-shovel excavation were as follows:

Drilling and blasting.....	\$0. 1451
Excavation by steam shovels.....	. 1081
Transportation.....	. 1942
Tracks.....	. 0830
Dumps.....	. 1548
General expense.....	. 0193
Total.....	. 7045

The above figures do not include the material used in the repair of locomotives, steam shovels, and cars (nor does it include the cost of plant), of operating the air compressor, nor the proportionate cost of administration and general expense of the Mechanical Department, which department makes repairs on plant for the Culebra Division. These items, previous to July 1, 1907, had never been included in the cost of excavation in the Culebra Division, but as they comprise a fair charge against this work, they will be included in the cost of excavation for all months thereafter. These omitted items of cost were worked out in detail for the month of July, 1907, and amounted to \$0.1535 per cubic yard of excavation. These figures are given as a basis for comparing the cost of work previous to July 1, 1907, with that done at a subsequent date.

In the figures of cost just given the total cost of drilling and blasting for the year has been distributed for the total amount of excavation both of earth and rock, so as to obtain the average cost of the work accomplished. But in order to obtain the real cost of drilling and blasting only the material actually mined should be considered, i. e., 3,291,856 cubic yards, making the cost for drilling and blasting when applied to these figures \$0.2557 per cubic yard. In other words, other things being equal, the removal of material due to blasting alone cost \$0.2557 more than that of earth.

The figures given do not include the cost of houses for the employees, nor any items of municipal engineering, nor do they include their proportionate share of the salaries of the Commissioners and their office force or the employees on duty in the United States.

In comparing the cost of work upon the Isthmus with that of a similar character in the United States, certain conditions existing in the former locality must be taken into consideration. The wages paid for skilled labor on the Isthmus are on an average from 40 to 70 per cent higher than the same class of laborers receive in the United States. The working day for steam shovels on the Isthmus is but eight hours, while on private enterprises in the United States it is often ten hours.

The coal used in the Culebra Division during the fiscal year ending June 30, 1907, cost \$6.48 per ton delivered at the work. This is fully double what would be paid for this coal in the southern and eastern part of the United States.

Owing to the long distance from the source of supply, machinery and material of all classes are more expensive than in the United States. In addition to these disadvantages, the climate is not one conducive to great physical and mental activity, and the rainfall is so great that it interferes considerably with the economical prosecution of work.

POWDER MEN, AND THE USE OF EXPLOSIVES.

The CHAIRMAN. What are the duties of the powder man?

Major GAILLARD. The powder man, our best paid one, is \$150 a month. His duties are to superintend the loading of the holes after they have been drilled. It is, of course, very responsible and fairly dangerous work.

Mr. KEIFER. That is, the dynamite and all?

Major GAILLARD. Yes.

Mr. MADDEN. You do not use any black powder?

Major GAILLARD. We do in the dry season, but in the wet season we can not use it to advantage.

Mr. MADDEN. Black powder would be more successful than dynamite if it could be used?

Major GAILLARD. Yes, sir; but we can not use it. The holes fill up with water.

Mr. MADDEN. It would be more economical, too, to keep the holes dry if you could?

Major GAILLARD. Yes; if we could, but we can not.

Mr. MADDEN. What per cent of dynamite do you use?

Major GAILLARD. We have a table giving all the dynamite ever used since we commenced, and the cost; but from memory I would say the larger part is 45 per cent. I think before we came they used 75 per cent.

Mr. MADDEN. Did they kill anybody when they used the higher grade?

Major GAILLARD. There were a good many accidents, but I think no more than you would expect where such an enormous quantity was handled.

Mr. MADDEN. What do you pay for dynamite?

Major GAILLARD. We have that in the table. It is between 11 and 12 cents.

Colonel GOETHALS. I will revise it from his table. The table will be a part of the record.

Following is the table referred to:

Statement of explosives received at Cristobal from May, 1904, to October 31, 1907.

Dynamite:

20,000 pounds, 30 per cent nitroglycerin, at 10 cents per pound.....	\$1,950.00
3,267,000 pounds, 45 per cent nitroglycerin, at 11 cents per pound.....	349,201.50
1,550,000 pounds, 60 per cent nitroglycerin, at 12 cents per pound.....	192,160.00
300,000 pounds, 75 per cent nitroglycerin, at 14 cents per pound.....	42,375.00
16,100 pounds, unclassified, at 20 cents per pound.....	3,191.00

Total, 5,153,100 pounds, at 11 + cents per pound.....	588,877.50
---	------------

Black powder:

597,500 pounds blasting, at 8 cents per pound.....	45,212.50
15,000 pounds giant No. 0, at 19 cents per pound.....	2,850.00
32,500 pounds giant No. 1, at 19 cents per pound.....	6,175.00
22,500 pounds giant No. 2, at 14 cents per pound.....	3,100.00

Total, 667,500 pounds, at 9 cents per pound.....	57,337.50
--	-----------

Total number of pounds of explosives.....	5,820,600
---	-----------

Dynamite, per cent.....	89
-------------------------	----

Black powder, per cent.....	11
-----------------------------	----

Miscellaneous:

399,000 dynamite caps.....	\$2,129.75
444,500 detonators.....	25,581.86
1,413,000 feet fuse.....	5,314.82
111 batteries.....	3,096.40
1,200 pounds copper wire.....	287.00

Miscellaneous—Continued.

54,000 feet insulated tape-----	\$189.20
20,000 feet copper wire-----	140.00
1,000 feet lead wire-----	750.00

Total cost of explosives----- 683,704.08

NOTE.—Prices are averaged. In some instances they are c. i. f. Colon; in others, f. o. b. New York. They do not include cost of purchasing or handling on Isthmus, for which about 20 per cent should be added.

Mr. MADDEN. What do the powder men do, did you say?

Major GAILLARD. They say where the hole shall be drilled. They have the entire charge of the blasting. They do not actually operate the drills, but they locate the holes and the depth to which they shall go, and the loading of the holes, and the firing of them.

Mr. MADDEN. I should think the superintendent of the force where the drilling is being done would have charge of that.

Major GAILLARD. He has general charge.

Mr. MADDEN. The point I wanted to make was this, that I rather think the powder man is an extravagance, to be very frank with you. I wanted to know what his specific duties were on that account.

Major GAILLARD. Well, we use from 110 to 117 tons of dynamite a month, and I think it needs a man of more than average intelligence to supervise that work so that accidents will not occur.

Mr. BURLESON. You estimate here for 40 powder men. You have not that many in your employ now?

Major GAILLARD. I have about 30 now.

Mr. MADDEN. How much do the men immediately under the powder men receive?

Major GAILLARD. Well, they get different prices—from 26 and 32 to 40 cents an hour. They are day laborers, silver.

Mr. MADDEN. They are the men who put the dynamite into the holes and tamp it?

Major GAILLARD. They tamp it.

Mr. MADDEN. And they shoot the blast.

Major GAILLARD. The powder man fires the blast himself.

Mr. MADDEN. You do it by battery?

Major GAILLARD. They do it by battery and by fuse. The larger, deeper blasts are done by battery.

Mr. MADDEN. Do you think you really need more than one powder man, if you need any, on any division?

Major GAILLARD. I think so. I would want him wherever there was blasting on any large scale going on—loading and blasting. I think our cost of blasting is not excessive, even including the salaries of these powder men. It amounted for the fiscal year ending June 30 last to 25½ cents a cubic yard for drilling and blasting the rock.

The CHAIRMAN. Including the cost of dynamite?

Major GAILLARD. Including the cost of dynamite. I think the powder men justify their salaries.

Mr. TAYLOR. You mean the results you get from powder men justify their employment?

Major GAILLARD. Yes, sir. I think their employment is justified by the results.

DRILL RUNNERS.

The CHAIRMAN. What is a drill runner?

Major GAILLARD. We have different classes of drill runners here. The drill runners, as we call them here, are really drill foremen. The drill runner is almost invariably a European laborer at 40 cents an hour silver, or a negro at from 26 to 32 cents, and these so-called drill runners are the drill foremen that supervise a gang of generally six drills.

Mr. MADDEN. Do you pay a man \$1,500 a year to supervise six drills?

Major GAILLARD. The \$1,500 man would have a larger battery than that. He has the drills, too; the boring of the deeper holes with the well drills.

Mr. MADDEN. What is left for the foreman to do if you employ drill runners and drill foremen to take that off his hands, and powder foremen also to take that off his hands? Isn't he an ornamental figurehead?

Major GAILLARD. No; I do not think he is an ornamental figurehead. He has this work under him. We want to have a man who will know what the different drill gangs are doing and turning out per day.

CHANGES MADE IN THE ORGANIZATION.

The CHAIRMAN. Will you give the committee a statement of such changes as you have made in your organization since you have taken charge?

Major GAILLARD. Yes, sir. You wish it given now?

The CHAIRMAN. Yes.

Major GAILLARD. The principal change has been in the Culebra Division, in dividing it into construction districts. The entire length of the Culebra Division is 9.2 miles. There was a superintendent of excavation, a superintendent of transportation, and a superintendent of tracks and dumps, and also a superintendent of water surface, and when anything went wrong and the output was not what we thought it should have been, it was difficult to place the responsibility. One department was apt to try to lay the blame on another department. The division was long, and the superintendent could not get around to his steam shovels every day, and it was impossible physically to have the supervision over them that he should have had. That question was gone over, and the assistant division engineer, then acting as division engineer, Mr. L. K. Rourke, proposed, after consultation with Colonel Goethals and myself, that if we divided it into six districts—six of them were authorized, but only five authorized at present—and superintendents of construction were to be arranged for each of those districts, the superintendent of each would be responsible for everything in that district; he would control his excavation and water surface, and be in fact supreme in that district, subject to the division engineer.

The CHAIRMAN. What are the limits of those districts?

Major GAILLARD. There are four in the 9.2 miles. That would make them about 2.3 miles each, to the average district. The superintendent now is responsible for everything in that district. It has

inspired a spirit of emulation; the output of shovels every day is recorded, and a report is sent in showing the amount of excavation. If they fall down in one district they call that superintendent up and ask him what the trouble is.

The CHAIRMAN. That is the result of this?

Major GAILLARD. Yes; the result of this change of organization; and the output has increased in spite of the heavy rainfall since the change was made.

Mr. MADDEN. Now, follow on down below the superintendents.

Major GAILLARD. The only changes we made was giving a superintendent an assistant superintendent of construction in a district. The other force was simply divided up and assigned in proportion to the steam shovels working in each district.

Mr. MADDEN. Tell us briefly what it is. Give us one example.

Major GAILLARD. We have the superintendent, the assistant superintendent, the general foreman, and his foremen under him.

Mr. MADDEN. How many foremen would be under each general foreman?

Major GAILLARD. I do not know that I can answer that.

Colonel GOETHALS. Take any particular district and follow it down.

Mr. MADDEN. Yes; just as a sample, so that an ordinary fellow can understand it.

Major GAILLARD. Take the Culebra construction district. We have a superintendent of construction, an assistant superintendent of construction; under that there is a supervisor in charge of the tracks and dumps.

Mr. MADDEN. Tell us what he does.

Major GAILLARD. He keeps the track up in that construction district, lays new tracks for shovels, loading tracks, and changes tracks.

Mr. MADDEN. He is next in command?

Major GAILLARD. Yes, sir; in that division.

Mr. MADDEN. How many people are under him?

Major GAILLARD. He has now, in the Culebra Division, 9 gold foremen and 12 silver foremen that are paid salaries that are very small.

Mr. MADDEN. How many men have they under them?

Major GAILLARD. Under those foremen are 335 men; but the bulk of his men are these silver foremen, who get salaries as low, some of them, as thirty or forty dollars.

Mr. MADDEN. Then there would not be on the average more than 40 to each?

Major GAILLARD. Yes.

Mr. MADDEN. Go on with the rest.

Major GAILLARD. There is an assistant supervisor in charge of tracks and dumps. He takes another part of the Cut, unless the other one is away on leave, and he has 8 gold foremen, 6 silver foremen under him, and 343 men. He has an easier part of the Cut where the tracks are more permanent.

Mr. MADDEN. He has about 16 men?

Major GAILLARD. Yes; he has over 20; 14 foremen to 343; but he has easier tracks, and they put a supervisor in charge. Then we have the assistant supervisor in charge of tracks and dumps that are adjacent to the work, from which trains only from that construction district dump, as in the case of this one at Culebra, right at the depot,

He has under him 7 gold foremen and 6 silver foremen, and he has 195 men. The percentage of men there is considerable, because that is a dump that is hard to keep going in the wet season. Then we have a general foreman in charge of the mechanical churn drills.

Mr. MADDEN. You mean the well drills?

Major GAILLARD. Yes. He has under him 6 gold foremen and 12 silver foremen and 170 men. The number of his drills varies continually, but at this time he has about 18 or 20 drills. They lay the tracks for the drills; that is, tracks on which the drills rest, and in doing that it took a large number of men.

Mr. MADDEN. These tracks are made for the drills by laying them on timbers?

Major GAILLARD. Yes; but in some places we had actually to blast to get them up there, and it made the number of men rather greater when this was laid out than in any other part of the work.

The CHAIRMAN. Then, on the whole, in the Department of Construction and Engineering you have 593. You have estimated for that number?

Major GAILLARD. Yes, sir.

Colonel GOETHALS. That is on the whole.

Mr. MADDEN. You have not completed that yet?

Major GAILLARD. No. There is a general foreman in charge of the excavation. He has 12 gold foremen and 20 silver foremen under him. There are 10 men to each foreman. He has only half of the Culebra district. I have another that takes the other half of the Culebra district. He has 8 gold and 10 silver foremen, and 243 men.

Mr. MADDEN. That is a typical organization, representing what it is in any particular district?

Major GAILLARD. Yes, for the rainy season. The number of men would be less, the total force would be less, in the dry season.

FOREMEN, THEIR DUTIES AND COMPENSATIONS.

Mr. MADDEN. Do you find it necessary to have a foreman over 10 or 12 men?

Major GAILLARD. No, I would not consider it necessary if all our foremen were good first-class gold foremen. Most of these silver foremen are very low-priced men and could scarcely be classed as foremen in the ordinary sense. They are simply directors of that work.

Mr. MADDEN. What do you pay them?

Major GAILLARD. Some of them get 40 cents silver an hour—the lowest paid; and we have some as high as \$200 silver per month, or \$100 gold.

Mr. MADDEN. It is generally considered that you can get the best work out of a foreman when you give him about 40 men?

Major GAILLARD. Yes. I think if you take the gold foremen you will find they have about that number.

Mr. MADDEN. With less than that they have not enough to do.

Mr. GARDNER. Who has the responsibility of selecting the dumps where you put the dirt?

Major GAILLARD. I think before our coming here the division engineer had a hand in it, and I think the Tabernilla dump Mr. Stevens selected. Since then I have gone with the division engineer and se-

lected five or six of them. In fact I have gone with them on every dump that has been established since I have been here.

Mr. GARDNER. The greatest difficulty is to dispose of the spoil of the excavations?

Major GAILLARD. Yes, especially so in the wet season.

Mr. TAYLOR. Let me see if I understand you about the foremen. You say a first-class foreman ought to be able to handle 40 men?

Major GAILLARD. Yes, if you had men of ordinary intelligence; but the number of men he can handle decreases in proportion to the lack of intelligence of the men he is handling.

Mr. TAYLOR. Do you say that some of your foremen are incapable of handling 40 men?

Major GAILLARD. A number of them are; that is true.

Mr. TAYLOR. Is that the cause of the increase in the number of foremen?

Major GAILLARD. That is one cause. The other is that the men themselves are as a class so little endowed with natural intelligence that it takes twice as long to show what a man should do and explain to him how to do it than it would take to show a man in the United States.

Mr. BURLESON. And then you have to show him again and again?

Major GAILLARD. Yes.

The CHAIRMAN. Then you contend that the number of foremen required here can not be measured by the standard we have in the United States?

Major GAILLARD. Most certainly, sir; I think that is almost self-evident. I think you would see it for yourselves if any of you gentlemen would care to go down into the cut.

The CHAIRMAN. Have you had difficulty in securing competent foremen?

Major GAILLARD. Yes, sir; we have had a good deal of difficulty in securing foremen.

The CHAIRMAN. Have you that difficulty now?

Major GAILLARD. I think it will disappear with the changed conditions in the United States, but we have had trouble up to this time in getting proper foremen.

The CHAIRMAN. And these foremen, in addition to their compensation, have all the privileges, including house, and light, and fuel, and water, etc.?

Major GAILLARD. Yes; all the privileges that the regular gold monthly employees have.

The CHAIRMAN. House rent, and furniture, and everything?

Major GAILLARD. Yes, sir.

Mr. MADDEN. Do they get paid when the steam shovels are not capable of working? They are paid by the month?

Major GAILLARD. Yes; except some of these silver foremen that I mentioned, who are paid by the hour.

Mr. MADDEN. Have you anything to show as to the cause of delay, and the average output of each shovel each month, and the record?

Major GAILLARD. Yes; I have a record of the number of shovels at work, and the number of hours worked, and the number of hours lost, and the causes that made it lose time.

Mr. MADDEN. And will you be kind enough to put that into the record?

Major GAILLARD. Yes, sir.

The CHAIRMAN. We got that this morning. Colonel Goethals had it. It is the same thing.

YARD MASTERS.

You have 71 yard masters. That is in addition to the yard masters of the railroad company?

Major GAILLARD. Yes, sir; these are entirely the Culebra Division yard masters. We have them in the important points in the Cut and on the larger dumps; I have under me 25 yard masters. The Culebra Division is on page 36, where there are 21 yard masters.

The CHAIRMAN. Where are the rest of these yard masters in the Engineering department?

Colonel GOETHALS. They will be found in the other divisions.

The CHAIRMAN. I understood the Major to say in the beginning that he had charge of the excavation from the Pacific to the Atlantic.

Colonel GOETHALS. So he has, but the estimate you have before you is a consolidation of the estimates in detail of all the divisions, and the detailed estimates coming under each of the divisions are given further on in the Book of Estimates.

The CHAIRMAN. What other division has anything to do with the transportation?

Major GAILLARD. The Chagres Division, and the Colon Division, and the Gatun locks and dams, and the La Boca locks.

Mr. MADDEN. You have 21 yard masters, Major, at one point of distribution?

Major GAILLARD. We have 21 yard masters for the entire Culebra Division.

The CHAIRMAN. You have 21 in all?

Major GAILLARD. Yes. They are located at such places as the White House yard, the Las Cascadas yard, and the Pedro Miguel; and at the Tabernilla dump there are two all the time, one at the north and one at the south end, and one at the Culebra dump, to see that the trains run regularly.

Mr. MADDEN. How many trains would these 21 yard masters handle in a day?

Major GAILLARD. I have that on my daily report, but I do not carry the exact figures in my head.

Mr. MADDEN. They are really dump foreman, Major, and not yard masters proper?

Major GAILLARD. They regulate the running of the trains to and from the dumps, but those at Las Cascadas are regular yard masters.

Mr. MADDEN. They make up trains there?

Major GAILLARD. Yes, they make up trains there. The number of trains handled on November 8 was 214.

The CHAIRMAN. How many yards have you?

Major GAILLARD. We have two storage yards only. The one at Las Cascadas or White House, and the other at Pedro Miguel. Then I have a small yard at Tabernilla. We are going to run the trains straight from the cut to Tabernilla without stopping at the Las Cascadas yard, trying it as an experiment with the idea of reducing expenses.

The CHAIRMAN. Do you find it necessary to pay your yard masters \$2,100 a year?

Major GAILLARD. Their salary bears a relation to the price paid to conductors. The yard masters give orders to the conductors, and when they raised the conductors' pay to \$190 per month we had to pay the yard masters a higher salary.

The CHAIRMAN. You pay your conductors \$2,280?

Major GAILLARD. The qualified conductors running on the Panama Railroad.

The CHAIRMAN. They correspond with our freight conductors.

Major GAILLARD. Yes, they are simply conductors of material trains. Their duties correspond more closely to the duties of a freight conductor than anything else.

The CHAIRMAN. Do you know what freight conductors receive in the States?

Major GAILLARD. I do not know. My knowledge of that is a good many years old.

Mr. MADDEN. Do you really think there is any need of a division of these trains?

Major GAILLARD. Yes, many of the trains run on the main line of the Panama Railroad Company, which has a large freight and passenger traffic, and we have been quite successful as a rule in running without injury to life.

The CHAIRMAN. Do they run on schedule?

Major GAILLARD. No, sir; they did run on a block system, but now they simply run under caution, and very closely together.

The CHAIRMAN. Have you any block system?

Major GAILLARD. The trains could not travel on time. We block the passenger trains, but in between the passenger trains they are not blocked. They run under caution.

Colonel GOETHALS. We have one train immediately following another. You see a whole string of them going out of the yards.

TRAIN MEN.

The CHAIRMAN. You are estimating for 125 trainmen at \$1,200. They correspond to yard brakemen?

Major GAILLARD. They are flagmen and brakemen.

The CHAIRMAN. Are they white or black?

Major GAILLARD. They are white men; \$100 men.

The CHAIRMAN. Did the yardmasters demand an increase of pay because the conductors were increased?

Major GAILLARD. They did not as a body, but they let it be known very plainly that—

The CHAIRMAN. When was the salary of the conductors increased?

Major GAILLARD. On May 1, 1907.

The CHAIRMAN. For what reason was the increase made?

Colonel GOETHALS. The conductors, locomotive engineers, and steam shovel men's cases were considered at the time of the visit here of the Secretary of War, and he gave them a hearing, and as the result of that, on the recommendation of Mr. Stevens and Mr. Bierd, the locomotive engineers were placed on a par with the steam shovel engineer who was getting \$210 a month, because in the States the locomotive engineer was usually a higher-paid man.

The CHAIRMAN. He is usually or almost always a higher-class man, too?

Colonel GOETHALS. That is claimed by the locomotive engineer, but not admitted by the steam shovel man.

The CHAIRMAN. Perhaps not.

Colonel GOETHALS. \$210 for the locomotive engineer, and for the qualified conductors \$190 was authorized, as the result of that hearing.

The CHAIRMAN. Have you made investigations, Major, for the purpose of ascertaining to what extent the men under you are paid in excess of what they receive in the States for similar work?

Major GAILLARD. I have made, from the best data I could get at the time, an investigation, and it varied so widely that I can only say that they receive from 40 to 70 per cent in excess generally.

The CHAIRMAN. In excess?

Major GAILLARD. Yes.

The CHAIRMAN. That is in compensation?

Major GAILLARD. Yes, in compensation.

The CHAIRMAN. Do you include in that the value of the privileges and comforts and things?

Major GAILLARD. No, I mean in straight pay. That does not apply to every employee, but that is a general statement; from 40 to 70 per cent.

The CHAIRMAN. Then in addition to this 40 or 70 per cent excess of compensation, they receive all the privileges—free house rent, and light, and fuel, and water, and medical attendance, and medicine, and hospital, and club house, and six weeks' vacation—

Mr. MADDEN. And thirty days' sick leave with pay—

The CHAIRMAN. Yes, and thirty days' sick leave with pay, with the expenses of their social and religious relations in addition, and the expenses of their fraternal organizations?

Major GAILLARD. That would be true of the monthly men, but the per diem men do not get the annual leave with full pay.

The CHAIRMAN. I am talking about the foremen and conductors and trainmen.

Major GAILLARD. Yes; all the gold men get all the privileges you have enumerated—

The CHAIRMAN. And more, too.

Mr. MADDEN. Has anybody ever undertaken to determine how much the privileges per day or per month would amount to?

Colonel GOETHALS. We have some estimate of certain things, but the religious items and club houses and privileges of medical attendance, etc., would be variable. Some men have required no medical attention since they have been here, in two years. Others have required a great deal.

The CHAIRMAN. Major, if Congress should devise some plan, if in its judgment it could be done, whereby it should enact some legislation which would require a reduction of compensation here, would it, in your judgment, materially or to a great extent retard the progress of the work?

Major GAILLARD. I think it would create, as a reduction always does, a certain amount of dissatisfaction, which might for a time reduce the output. I think that would quite probably happen, and if conditions were very prosperous in the United States, that length of time might last for a good while. If the conditions were not

prosperous in the United States, I believe we would in a reasonable time recover from the effects of such a temporary setback.

Mr. GARDNER. Don't you think a man would hesitate to throw up his job here and take one at 50 or 60 or 70 or 80 per cent less?

STRIKE OF THE STEAM-SHOVEL MEN.

Major GAILLARD. You would think so, but we saw men in May throw up \$210 and longevity, and that cut us down to 13 shovels from 48, just because a certain demand was not complied with.

Mr. MADDEN. They came back, though, did they not?

Major GAILLARD. Yes; we have practically all of them back again.

Mr. MADDEN. The reason why they threw their jobs up is probably because they were refused for the first time what they asked, and they thought, perhaps, they might be able to enforce their demand by waiting awhile.

The CHAIRMAN. How long after the reduction from 48 to 13 shovels was it before you were back again to normal?

Major GAILLARD. In numbers we were back very quickly—from six weeks to two months; but in efficiency we were not back for several months. We made men shovelmen in the emergency that were far from skillful, just to keep the shovels from lying idle.

Mr. MADDEN. These men that were made in that way have turned out to be efficient since?

Major GAILLARD. A great many of them have. Most of them have, but some of them have not.

Mr. MADDEN. You have demonstrated your ability to make steam-shovel men?

Colonel GOETHALS. There is no doubt about it. We can make them.

The CHAIRMAN. In six months' time?

Colonel GOETHALS. In less than that.

The CHAIRMAN. Then it comes down to this: That a man who can become proficient as a steam-shovel man in six months can draw \$210 a month pay, whereas the ordinary mechanic has got to serve anywhere from two to three years before he can draw the maximum rate paid in that trade?

Major GAILLARD. They would not get promoted as quickly as that now. They were promoted in May very quickly, but now they are started as firemen and then promoted to cranemen and then to shovelmen. We have a roster. The flagman is given the next try as conductor. If he is successful he goes in.

The CHAIRMAN. Do you not find, Major, that you have men all the time anxious to take the position of fireman in order to become proficient in the use of the steam shovel?

Major GAILLARD. Yes. We have no trouble in procuring firemen with that end in view, because the pay of firemen is extravagant in itself.

The CHAIRMAN. You let it be known that you are bringing men up in that way now?

Major GAILLARD. Yes; but in that emergency in May we took men who could run a shovel from any part of the Isthmus.

Mr. GARDNER. What part of an eight-hour day does the steam shovel work?

Major GAILLARD. It works anywhere from 59 to 60 per cent in this season. In the dry season it is more than that.

Mr. MADDEN. That is in the event you move the material?

Major GAILLARD. Yes.

Mr. MADDEN. Is there any effort you have made to get more cars if you have not enough.

Major GAILLARD. Yes.

Mr. MADDEN. Is this loss of time on the part of the steam shovels due to the fact that you have not sufficient cars?

Major GAILLARD. It is largely waiting for cars, and frequently it is due to blasting.

Mr. MADDEN. Waiting for cars from where?

Major GAILLARD. It is waiting for cars from the dumps. The train service is not continuous enough.

Mr. MADDEN. Have you not enough cars to give you continuous service if the men in charge of the trains were capable of moving the trains as fast as they should be moved?

Major GAILLARD. When those under contract arrive we would have. Some of them have been under contract for a year, but they are much behind in arriving.

INCREASE OF EXCAVATING FORCE.

The CHAIRMAN. Major, in your estimate for salaries and compensation of men, how much of it is reckoned as increases of salary and how much for increase of men?

Major GAILLARD. We have allowed nothing on the present operations for increases of salaries. My idea in the Culebra Division and in fact all the divisions, with the consent of the Chairman and Chief Engineer, will be to promote when vacancies occur, so that we will keep the rate of pay fixed, a constant number of men arriving at the fixed pay. In that way the rate of pay will remain constant. If there is 30 per cent added to the work, what we have done will be to add 30 per cent to all grades right straight through.

The CHAIRMAN. Your increase is on account of the increased number of the force and not to any extent to an increase in the salaries to be paid in the next fiscal year to those now employed?

Major GAILLARD. No allowance has been made for any increase in the pay of any grade.

The CHAIRMAN. Do you know how much your estimates for the next fiscal year exceed the appropriation for the current year in your department?

Major GAILLARD. I have it, but I do not remember.

The CHAIRMAN. You can have it put in through the stenographer.

Major GAILLARD. Yes. It is in such shape that I can get it. That is for the current fiscal year.

The CHAIRMAN. Yes; how much your estimate for compensation for salaries, not material, for the next fiscal year exceeds the amount you are expending this year for the same purposes?

Major GAILLARD. In other words, how much the estimate for salaries and compensation for 1909 exceeds that of 1908?

The CHAIRMAN. Yes.

[The table referred to was not furnished.]

MATERIAL AND SUPPLIES.

The CHAIRMAN. Now, Major, turning to the item for material and supplies, what part of the estimates here come under your department? There is an estimate of \$11,000,000 now for material and supplies, etc., which is in excess by over \$2,000,000 above the appropriations for the current year. What I want to get at is what part of the estimate comes under your jurisdiction and the estimates you have made.

Major GAILLARD. Of these estimates I have for the Culebra Division for material and supplies, \$2,818,344; for the La Boca Division I have for material and supplies \$190,900; for the Colon Dredging Division I have for material and supplies \$354,700; for the Chagres Division, which is a new division which is being developed, I have for material and supplies \$653,000. That is the total of the work over which I have jurisdiction. In the Chagres Division everything is being put in new. They had no plant, no locomotives, and no cars. Everything had to be bought, in fact, for that division.

Colonel GOETHALS. This includes fuels, explosives, batteries, fuses, transportation, tools, dredge supplies, and general construction tools and supplies, water service, dredges and outfit.

Major GAILLARD. The biggest item was the dredge.

The CHAIRMAN. I understood from Colonel Goethals this morning that no part of this would be expended for shovels.

Major GAILLARD. I was mistaken. It does not include shovels.

The CHAIRMAN. In your Chagres Division you have an estimate here of \$150,000.

Major GAILLARD. Yes, sir.

The CHAIRMAN. What do you mean by dredge outfit?

Major GAILLARD. A good deal of material—8,000,000 yards in round numbers in the Chagres Division—is quite soft material or earth, and Major Jadwin, who is the division engineer, thinks a large part of it can be done more cheaply by dredging than with steam shovels. I agree with him entirely, and he put in for dredging \$150,000, with the idea that it might be necessary to build a large modern dredge, with its outfit; but on the other hand, he might use the same sum in repairing and putting into commission certain old French dredges for that work, and it was in order to reduce the cost that that item of dredging was put in. In fact, some of it could not be done by steam shovels. It is submerged excavation and none of our dredges could get up there from either terminal. If it were possible to get up from the terminals we might lend him a dredge from La Boca or Colon. A dredge will have to be constructed especially for that work or some of the old French dredges fitted up.

THE OLD FRENCH MACHINERY AND DREDGES.

The CHAIRMAN. Have you determined the utility of the old French machinery, whether it can be put in shape or not?

Major GAILLARD. No, sir; only so far as concerns my own work. But I have passed on 3 dredges, 3 of the elevator or ladder dredges of the French type, and 2 clapets or self-propelling barges are to be repaired and put in commission since I have been in charge. I recommended it, and the Chief Engineer directed it.

The CHAIRMAN. What would be the cost of repairing these dredges?

Major GAILLARD. It varies very considerably. They took the easiest to repair and those in best condition at first, naturally, and one of the cheapest of all is one that I had repaired since I took charge of the work, and it is now at work at La Boca. You may have seen it from the shore. Its capacity was 143,000 yards last month.

The CHAIRMAN. What is the name of the dredge?

Major GAILLARD. That is No. 14. It has no name. It was the old French number and we kept it.

The CHAIRMAN. How does it compare in capacity with the modern dredge?

Major GAILLARD. I think it is well up in capacity with the modern dredge.

The CHAIRMAN. What would it cost to have a dredge of that capacity made?

Major GAILLARD. We had a cheaper dredge of less capacity that cost \$102,000. I do not really know what one of the same capacity would cost.

The CHAIRMAN. Now, the other two dredges that you are repairing—

Major GAILLARD. One is estimated to cost \$25,000 and the other \$35,000. The last one was in a poorer condition. Each succeeding one will probably cost more than its predecessors.

The CHAIRMAN. How many can be made available by repairing?

Major GAILLARD. When those I have mentioned have been repaired, we will have used the best ones for the two terminals, but for the Chagres Division there are three or four that could be put in order. The only drawback would be their distance from the machine shops, and the cost would be increased by having to build temporary ways and doing the work at a distance from the shop. But they can be repaired, I think, at fairly reasonable figures.

The CHAIRMAN. What will be the capacity of those you are now repairing?

Major GAILLARD. They will vary from 125,000 to 145,000 yards.

The CHAIRMAN. You mean cubic yards?

Major GAILLARD. Yes, sir.

The CHAIRMAN. Can they be operated and maintained in service as cheaply as the modern dredge?

Major GAILLARD. Not quite. The machinery is a little more complicated than the modern working dredge, but they can be used in places where the modern working dredge can not be used. They can be used against a bank, and it is a more adaptable dredge than the modern working dredge, and costs more to operate.

The CHAIRMAN. What did that suction dredge that is now working at Colon cost?

Major GAILLARD. About \$372,000.

The CHAIRMAN. You have another one?

Major GAILLARD. We have one coming around Cape Horn now. That is going to La Boca.

The CHAIRMAN. Where were they built?

Major GAILLARD. At Sparrows Point, by the Maryland Steel Company. The one at Colon took out 273,000 cubic yards last month. That has two 20-inch pumps. The object in getting those dredges, I

should say, was not entirely for construction work. When the canal is completed the two terminals will have two channels several miles in length, with soft mud and silt around them, and these dredges are for maintenance at either extremity. They are excellently built and are fine pieces of machinery, and there is no reason why they should not last for many years after the canal is finished, so that their total cost is not a fair charge against the primary construction of the canal.

The CHAIRMAN. They will be operated, one at the Atlantic end, at the same time that the canal is being utilized?

Major GAILLARD. Yes, sir; and it can widen channels. Quite likely its capacity will be in excess of that needed for mere maintenance of channels; but as it is in commission anyway, it can be used for widening the channels and anything that is desired, without added cost.

The CHAIRMAN. What other French material under your department have you been able to utilize by repairing?

Major GAILLARD. I have had a good many French engines and French dump cars in use.

The CHAIRMAN. How many have you repaired and put into commission?

Major GAILLARD. I have the list in my room.

Following is the statement referred to:

On June 30:

In use by the Panama Railroad, 24 locomotives.

In use by the Isthmian Canal Commission, 100 locomotives, 541 dump cars, 4 ladder dredges, 11 claps.

Mr. BURLESON. How would it do for him to prepare a detailed statement showing what has been utilized of this machinery, and the cost of repairing it, and the approximate cost of like machinery if it had to be bought anew?

Colonel GOETHALS. I have not any detailed statement of costs. It is just the number repaired.

Mr. BURLESON. I would like to have some information on that, because heretofore I have thought we were woefully swindled in the payment of the \$40,000,000.

Colonel GOETHALS. I do not think so.

PURCHASE OF TOOLS.

The CHAIRMAN. The tools, excavation, mining, and track departments are under you?

Major GAILLARD. Some of these tools; as, for instance, in the Culebra division. I have for tools \$145,000.

The CHAIRMAN. On page 15, the fourth item from the top, is "tools, \$225,500."

Major GAILLARD. I have \$145,000 of that in one estimate.

Mr. MADDEN. I suppose that consists of drills and shovels and picks, and things like that?

Major GAILLARD. Yes, sir; \$170,000 of that amount is for work of which I am in charge.

The CHAIRMAN. Please give us a general idea of the nature of those tools.

Major GAILLARD. They are largely picks, shovels, crowbars, spikes, bars, axes, wedges, machetes, and drills.

The CHAIRMAN. How do you arrive at that estimate?

Major GAILLARD. Just by comparing it with what has been expended in preceding years. There is no other way of getting the proportions.

The CHAIRMAN. Can you arrive at the estimate that way unless you are figuring on putting in a certain number of men in addition to those you have now? Of course the shovels are breaking all the time.

Major GAILLARD. Much the larger part of that is for the Culebra Division; \$145,000 is for that division. We took that from the tools expended for excavation in the preceding year. As we figured on an increased amount of excavation, 30 per cent, we increased the estimate for tools. I do not know of any more accurate way. We could not attempt to specify the particular number that would be used. It is based on experience of work in the preceding fiscal year.

The CHAIRMAN. Your experience in the preceding year was not on the basis of a fixed number of men?

Major GAILLARD. No, sir; but we took it on the output, which is about the best thing we could do.

Mr. GILLET. If you were getting in lots of new men, they would require new tools?

Major GAILLARD. The division has been continually growing until now, when we think it is at its maximum.

Mr. GILLET. That is what I mean. I think the new men would perhaps require more new tools from now on.

Colonel GOETHALS. A new man's pick and shovel will not last his time out.

The CHAIRMAN. I know the shovel will not.

Colonel GOETHALS. The drill is constantly wearing and breaking.

Major GAILLARD. It is not absolutely accurate, but it is the fairest estimate we could give.

PURCHASE OF FUEL.

The CHAIRMAN. This estimate for fuel, is that under your department?

Major GAILLARD. Yes. I used on the Culebra Division last year about \$530,000 worth of coal. Now we have put on a number of new dredges that seem to have consumed a good deal of coal, and when this estimate was made some of those dredges had not yet begun work, and it was simply an estimate of what it would take. I do not think we have any reason, from the consumption so far of record, to change that.

The CHAIRMAN. What does your coal cost you down here?

Major GAILLARD. Delivered at the Cut, in the Cut at the shovels, or at the locomotives for the use of the locomotive division, it costs \$6.48.

The CHAIRMAN. Soft coal?

Major GAILLARD. Yes, sir; delivered in the Cut.

Mr. MADDEN. That is Pocahontas coal?

Major GAILLARD. Yes, sir; I think it is \$4.50. Mr. Slifer will know.

The CHAIRMAN. Mr. Slifer, what does coal cost at Colon?

Mr. Hiram J. SLIFER, General Manager, Panama Railroad. Three dollars in New York, \$4.75 and 20 cents for unloading—that is \$4.95.

Major GAILLARD. And \$6.40 delivered on the Cut. We unload from the dump trestle wherever we can get it.

The CHAIRMAN. Is not 20 cents a ton high for unloading?

Major GAILLARD. That is from the ship.

Mr. SLIFER. A large part of it has to be done by ship's tackle.

Major GAILLARD. That may be a few cents off, but I will correct it when I get opportunity.

Mr. MADDEN. And the cost of distributing the coal to the different steam shovels is necessarily high?

Major GAILLARD. Yes; it is done at night, so as not to block the tracks, and on these rainy nights it is very difficult to feed all the shovels with coal.

PURCHASE OF EXPLOSIVES.

The CHAIRMAN. How do you arrive at the estimate of \$1,981,800 for explosives?

Major GAILLARD. That is based on the number of pounds of explosives that were used for a certain output in the Culebra Division. Except the Gatun Lock Division, the other divisions had not really begun using explosives when this estimate was put in. The Chagres Division had not and the La Boca had not. For the Culebra Division alone we estimated \$1,500,000 for explosives for the next fiscal year.

Mr. MADDEN. That is based on so much a yard?

Major GAILLARD. Yes, sir.

The CHAIRMAN. That bears the same proportion to all the other divisions?

Major GAILLARD. Yes, sir; the bulk of the blasting is on the other divisions.

The CHAIRMAN. Is Bas Obispo in the Culebra Division?

Major. GAILLARD. Yes, sir.

Colonel GOETHALS. For Gatun locks the specification is \$2,800; for Gatun dam, \$4,800.

Major GAILLARD. We try to keep a surplus of explosives on hand, because if anything should interrupt our supply of explosives from the United States it would be a very serious business to supply the lack.

The CHAIRMAN. That is good business management.

Major GAILLARD. It is probably a slight overestimate of the actual amount that will be used.

The CHAIRMAN. Is any part of this estimate for bricks, lumber, paint, oils, and miscellaneous supplies in your division?

Major GAILLARD. Practically none. It is in the building department.

REPAIRS TO FLOATING EQUIPMENT.

The CHAIRMAN. Is the marine department under your jurisdiction—floating equipment?

Major GAILLARD. Yes, sir. I have most of the floating equipment; that is, the repairs to my floating equipment embrace most of the items you see there. Three other dredges will have to be repaired under the Division of Locks and Dams. We have 11 self-propelling tugs and barges. Major Sibert has the dredges for the dams.

MARINE DEPARTMENT—SUBSISTENCE AND SHOPS.

The CHAIRMAN. Under the marine department the estimate for subsistence is \$29,800.

Major GAILLARD. We subsist the crews on the dredges that work twenty-four hours—on the *Ancon*, a big seagoing dredge. We will do that, and also on the sister to that, the *Culebra*. We will subsist the crews. Then there is one tug on which we subsist the crews. The employees on the other dredges subsist themselves. This seagoing dredge does not come to land, and the crew does not get off it. It must come in once a week to coal, and it is necessary to subsist the men on it as though it were an ocean vessel.

The CHAIRMAN. The next item is shops, \$21,000.

Major GAILLARD. That is for such repairs and alterations as may be necessary, putting in new machinery and foundations for the machines, and slight changes in the marine shops.

The CHAIRMAN. This repair item of \$122,500 for floating equipment is for repair of French and American vessels that you have now?

Major GAILLARD. It is for repair of all vessels we have in commission.

The CHAIRMAN. It does not include the repairs you are making on the French vessels that you are not now using?

Major GAILLARD. No, sir; it is not charged to the plant. This is for repairs only.

REPAIRS, MISCELLANEOUS.

The CHAIRMAN. Colonel Goethals, who put in the estimate of \$170,700 for miscellaneous?

Colonel GOETHALS. That is made up of various items put in by the divisions. For instance, the *Culebra* Division has miscellaneous, \$10,000.

Mr. MADDEN. What does it consist of?

Major GAILLARD. In that division it would consist of things we can not number and classify, and emergencies that might come up. They are impossible to foresee. For instance, when the Cucuracha slide came along we rigged up a special apparatus for hydraulic work, and that was charged under "Miscellaneous."

Mr. MADDEN. Supplies under excavation and track department would cover that?

Major GAILLARD. Yes.

The CHAIRMAN. That item is largely a guess?

Major GAILLARD. Yes, sir; largely a guess.

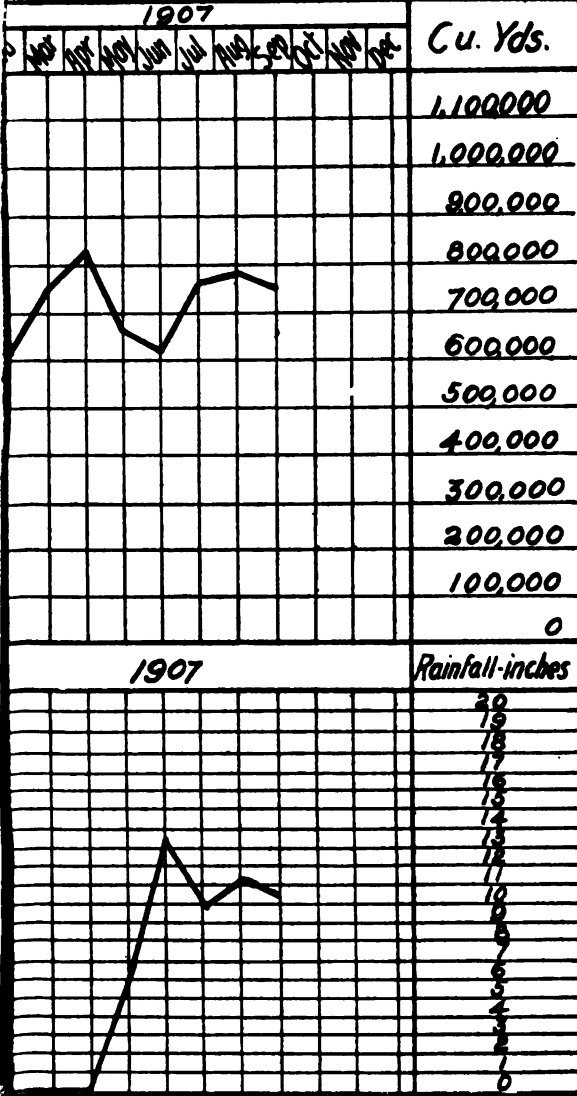
Colonel GOETHALS. Under building construction is miscellaneous work, \$25,000. Buildings burn down and have to be rebuilt. Miscellaneous, \$9,820, subsistence of personnel, including laborers in quarantine at Panama and Colon.

The CHAIRMAN. That is included in this item?

Colonel GOETHALS. Yes, sir; \$6,000 is for supplies in connection with Panama paving, etc.

VISION

FALL PER MONTH



Empire Oct '07. Office Res Eng



TRAVELING EXPENSES OF INSPECTORS, ETC.

The CHAIRMAN. The last item here on page 15 is "Traveling expenses of inspectors, officers, and special agents, including the salaries and services, \$44,000."

Colonel GOETHALS. They are in connection with the Washington office. In case we wanted to send a man up to the States from here to look up something specially, the expense would be charged to that item. We have done it in the past, but are cutting it out now.

Major GAILLARD. I have a call to-day to send an engineer and captain to bring a tug around Cape Horn. They have asked us to send him up by the next boat. That would come out of that fund.

The CHAIRMAN. That would come out of this item, but it would be a similar item?

Major GAILLARD. Yes, sir.

Colonel GOETHALS. That is more in connection with the office expenses in Washington, with relation to purchase of supplies.

USE OF OIL AS FUEL.

The CHAIRMAN. To what extent are you utilizing oil for fuel?

Colonel GOETHALS. Not at all, but we have made arrangements for necessary tanks and burners for the use of oil as fuel in all our shops, air compressors, electric-light plants, distilling plants, pumping plants, and engines of that kind, and we have taken up the question of using fuel on the two sea-going dredges, *Ancon* and *Culebra*, because we can buy oil at 90 cents a barrel under our agreement with the Union Oil Company. We can economize considerably on that one item of fuel as soon as we get proper installations, provided our supply of oil is continuous. Under the circumstances I do not want to reduce the estimate for fuel, because fuel is a very important item for the prosecution of the work. If we get oil burners and tanks installed we can cut down next year's appropriation and continue the use of this sum.

The CHAIRMAN. Who submits the estimates under item 6 at the bottom of page 15, to continue the equipment and construction of the Panama Railroad?

Colonel GOETHALS. Mr. Slifer will take that up with you.

The CHAIRMAN. Have you any other statement you wish to make, Major Gaillard? If so, we will hear you.

Major GAILLARD. No, sir. I think you have brought out about all I thought of saying.

Following is a document furnished by Major Gaillard:

Notes of reference on Culebra Cut, Isthmian Canal, Chagres River to Pedro Miguel, November 1, 1907.

At Bas Obispo is reached what will be the south end of Lake Gatun and the north end of what might be termed the Canal proper. This point is distant from Pedro Miguel $9\frac{1}{2}$ miles, and comprises within its bounds actually that part from Colon to La Boca that could technically be termed the Canal. Of this one-half mile will be 500 feet in width at the bottom; $4\frac{1}{2}$ miles will be 300 feet in width at the bottom, and $4\frac{1}{2}$ miles will be 200 feet in width at the bottom. The elevation of the water of the Canal will be the same here as at Gatun, that is, 85 feet above sea level and the bottom of the Canal will be cut down to elevation 40. This section covers what is known as Culebra Cut. On November

1, 1907, there remained to be removed approximately 47,074,500 cubic yards to complete the Culebra Cut. Up to November 1, 1907, the Americans had removed a total of 11,023,747 cubic yards, of which 7,194,644 cubic yards were taken out the first ten months of this year, making an average of 719,464 cubic yards per month. This average maintained will be equivalent to 8,633,568 cubic yards per year, or five years and five months to complete the excavation of the Culebra Cut.

The elevation of the bottom of the Canal at Bas Obispo is down to 74 feet elevation above sea level, and has been cut down from elevation 112 feet above sea level as it was left by the French.

The stone crusher, working at Bas Obispo, is of the No. 8 McCully type and has a capacity of 1,000 cubic yards daily. The efficiency of this crusher at present is from 500 to 600 cubic yards daily with a force of from 150 to 170 men.

The bottom of the Chagres River is at elevation of 42 feet above sea level, and as the proposed bottom of this level is to be elevation 40, it shows that there will only be 2 feet more of excavation required where the Canal intercepts the Chagres River.

Las Cascadas: A few miles further we come to Las Cascadas, where are located roundhouses, coal chutes, cinder pits, etc., to take care of Canal engines; also one of the three air-compressor plants, supplying air to the machinery in the yards and the drills at work in the Canal.

White House yard: A receiving yard for material from Culebra Cut, which is disposed of at Juan Grande, Hamel, and Tabernilla dumping grounds. Through this yard there passed during October, 1907, 229,720 cubic yards of material excavated from the Canal destined to the dumping grounds to the north, the material being carried by about 11,386 cars. This yard contains about 6.17 miles of track. The bottom of the Canal at steam shovel 220, opposite Las Cascadas, is at elevation 123 above mean sea level, representing a lowering of the bottom of 83 feet to complete. Elevation of the bottom of the Canal as it is at present opposite White House is 123 feet above sea level, and would show that there are 88 feet in depth still to be taken out of the bottom of the Canal. From south end of White House yard to about 1,000 feet north of old Culebra Station (where the bottom of the Canal is at elevation 165 feet above sea level) a distance of 2½ miles, the Americans have lowered the bottom of the canal about 10 feet, as left by the French, and have widened it out the entire stretch by 50 feet in width, as left by the French, to approximately 320 feet, or the present condition as you see it, and, in addition, have removed two barriers from 800 to 1,000 feet long, which were left by the French as originally found by them.

Diversion of Obispo River: Along here on the east side of the Canal on the highest level are steam shovels working on a diversion of the Obispo River, which will throw the river back 100 to 400 feet from what will be the final top of the slope and will when completed take care of most of the water on the east side of the Canal.

An idea can be gotten as to the width of the canal as it will be eventually by looking for the slope stakes, which are represented by the posts painted white with red tops. These can be distinctly seen as one goes through the Cut.

Empire: One and a half miles from White House we pass Empire, where are located—

On west side of Panama Railroad, auditing and disbursing offices of the Isthmian Canal Commission, circuit court, Canal Zone District No. 2, and new Y. M. C. A. building.

On east side of Panama Railroad, Empire shops which are being reconstructed to handle all steam-shovel repairs and overhauling. Here also is located another air-compressor plant and an electric-light plant, furnishing light for the towns of Empire and Culebra. On top of the hill is located offices of the division engineer of the Culebra Construction Division.

Culebra: At Culebra are located the administration offices of the Isthmian Canal Commission and headquarters of the Chief Engineer, head of Department of Construction and Engineering, and Chairman of the Commission, Lieut. Col. Geo. W. Goethals.

High Point of the Canal: Just beyond Culebra Station is the high point of the Canal (as it is at present), and is the divide between the Atlantic and Pacific oceans. This is now at elevation 167 above sea level and represents a cutting of 127 feet, which will be necessary to complete the canal at this point. From here to Gold Hill the Canal has been widened from three to five cuttings on each level, which represents 40 feet in width for each cutting from the present bottom of the Canal to the higher levels.

At Gold Hill the elevation of the highest point is 660 feet, but the bottom of the Canal at this point is 180 feet above sea level. Nothing on the very top of Gold Hill will be taken out, nor will it be necessary, as the cuttings have been made back to the slope line.

On Contractors Hill, on the right, there has been from 75 to 90 feet in width taken off the point on the high level.

Just south of steam shovel No. 208, and south of Contractors Hill, the elevation at the bottom of the present cutting is 131 feet. The elevation here as left by the French was 196 feet above sea level, representing a cutting here of 65 feet for a distance of 800 feet, which has been made by the Americans.

At steam shovel No. 224, or just south of Paraiso, where are located engine and car repair shops, the bottom of the Canal is down to elevation 60 feet above sea level and represents a cutting of only 20 feet to complete to the bottom. At this place the Canal as left by the French has been widened out four or five cuts.

Right behind steam shovel No. 224 will be noted one of a series of seven locks in a flight that the French contemplated using to get through the big divide at Gold Hill.

At steam shovel No. 202 the cutting of the Canal is down to elevation 35 and represents a cutting of 25 feet in depth to complete to bottom of locks.

At the crossing of the Panama Railroad the Panama Railroad tracks are at an elevation of 78 feet and would therefore be under water 7 feet after the completion of the Canal. To take care of the Panama Railroad it is the intention to throw it from Gatun to Pedro Miguel (or to about this last-mentioned bridge), onto a roadbed constructed on the east side of the Gatun Lake and through the Culebra Cut, at an elevation of 95 feet above sea level, or 10 feet above the water as it will be in the canal; at Pedro Miguel the railroad will drop down to elevation 65 feet above the level and maintain this grade until the Sosa-Corozal dam is reached and then drop down into Panama and La Boca on the east side of the Sosa-Corozal dam.

Pedro Miguel locks: At the Panama Railroad bridge at Pedro Miguel there will be built the Pedro Miguel locks. These locks will be approximately 1,400 feet long and 350 feet wide, 75 feet deep, with approaches 1,400 feet at north end and 1,500 feet at south end, making a total of 4,300 feet and will lower the vessels into La Boca Lake where the water will be about elevation 55 feet above mean sea level.

Pedro Miguel yard: The Pedro Miguel yard is the southern receiving yard for material from the Culebra cut which will be disposed of in the Sosa-Corozal dam, and the dumping ground at Pedro Miguel, Corozal, and La Boca. During the month of October there was 248,333 cubic yards or 13,401 cars passed through this yard. This yard contains $7\frac{1}{2}$ miles of track.

NOTES.

On this date we have 10,193 men on Culebra Division pay roll.

On this date there are at work in Culebra Cut the following steam shovels: Three 45-ton steam shovels, $1\frac{1}{2}$ cubic yard buckets; thirteen 70-ton steam shovels, $2\frac{1}{2}$ to 3 cubic yard buckets; thirty-two 95-ton steam shovels, 5 cubic yard buckets; making a total of 48 steam shovels.

On this date there are in service the following locomotives: 126 American-built locomotives; 22 rebuilt French locomotives; making a total of 148 locomotives.

On this date there are in service the following cars: 258 American Western dump cars, capacity, 12 cubic yards each; 1,236 Lidgerwood flat cars, capacity, 20 cubic yards each; 20 French dump cars (rebuilt), capacity, 4 cubic yards each; 110 large Western dumps, capacity, 18 cubic yards each; 14 Goodwin dump cars, capacity, 20 cubic yards each; 7 Ingoldsby dump cars, capacity, 20 cubic yards each; 455 flats, work cars, labor cars, material cars, tool cars, etc., making a total of 2,100 cars.

On this date there are in service the following drills: 120 steam or air drills; 61 mechanical or churn drills; making a total of 181 drills.

Channellers, 4.

On this date there is in service the following unloading equipment: 20 plows, 10 Lidgerwood unloaders, 12 spreaders.

On this date there are in the service 12 pile drivers.

The 10,193 men shown on rolls at this date consist of the following: 1,102 gold monthly men, or Americans; 3,993 European laborers; 4,638 West Indian laborers; 450 native and white foreigners.

There were 834,499 cubic yards of material taken out during October, of which 573,293 cubic yards, or 69 per cent, was rock.

There were 222,650 pounds, or about 111 tons, of explosives used in blasting during the month of October.

There were 125,449 lineal feet, or 23.5 miles, of holes drilled during the month of October.

The following blueprints are attached :

Culebra division dumping grounds, showing capacity in cubic yards.

Graphical diagram of number of cubic yards and number of inches of rainfall per month.

Profile showing estimated quantity of material to be excavated after October 1 to complete the Panama Canal.

Culebra Division dumping grounds, showing remaining capacity in cubic yards.

Name of dump.	Cubic yards.	Name of dump.	Cubic yards.
Tabernilla.....	12,300,000	Gold Hill.....	800,000
Mamel.....	2,700,000	Rio Grande.....	320,000
Juan Grande.....	200,000	Cucaracha.....	4,500,000
Gorgona.....	1,000,000	Paraiso.....	250,000
Chagres.....	500,000	Pedro Miguel.....	60,000
Gamboa.....	400,000	Corozal.....	1,500,000
Bridge 53.....	6,000	Corozal Sosa dam.....	12,000,000
White House.....	15,000	La Boca.....	3,000,000
Cunnette.....	25,000	La Boca dam.....	6,000,000
Empire.....	1,000,000	New Panama Railroad.....	1,200,000
Cirio.....	150,000	Obispo diversion.....	500,000
Culebra.....	900,000		
Lirio.....	3,500,000	Total.....	52,826,000

* Including new Panama Railroad.

STATEMENT OF MAJ. WILLIAM L. SIBERT, U. S. ARMY, COMMISSIONER IN CHARGE OF DEPARTMENT OF LOCK AND DAM CONSTRUCTION.

The CHAIRMAN. Major Sibert, you are one of the Commissioners, and in charge of the branch of the work at Gatun, consisting of locks and dams, are you not?

Major SIBERT. I have charge of the lock and dam department, under the chief engineer.

The CHAIRMAN. That includes the locks and dams at Pedro Miguel and La Boca and Gatun?

Major SIBERT. Yes, sir.

The CHAIRMAN. The estimates are included in the estimate as printed here under the head of Construction and Engineering Department?

Major SIBERT. Yes, sir.

The CHAIRMAN. I will ask you this general question, Major: What experience have you had in the construction of locks and dams?

Major SIBERT. From 1887 to 1892 I was engaged in work that was confined almost entirely to locks and dams on the Green and Barren Rivers in Kentucky. From 1892 to 1894 I was connected with similar construction work in the Detroit district, and had something to do with the St. Marys lock and canal, but my special duties there were in connection with the ship-channel work; I had charge of the channel from Lake Huron down to Lake Erie. From 1894 to 1898 I had charge of a river and harbor district in Arkansas. Most of the work there was regulation work, although it involved the study of the canalization of the upper White River, which involved locks and dams. In 1900 and 1901 I was stationed at Louisville, Ky., and had

5

6

7

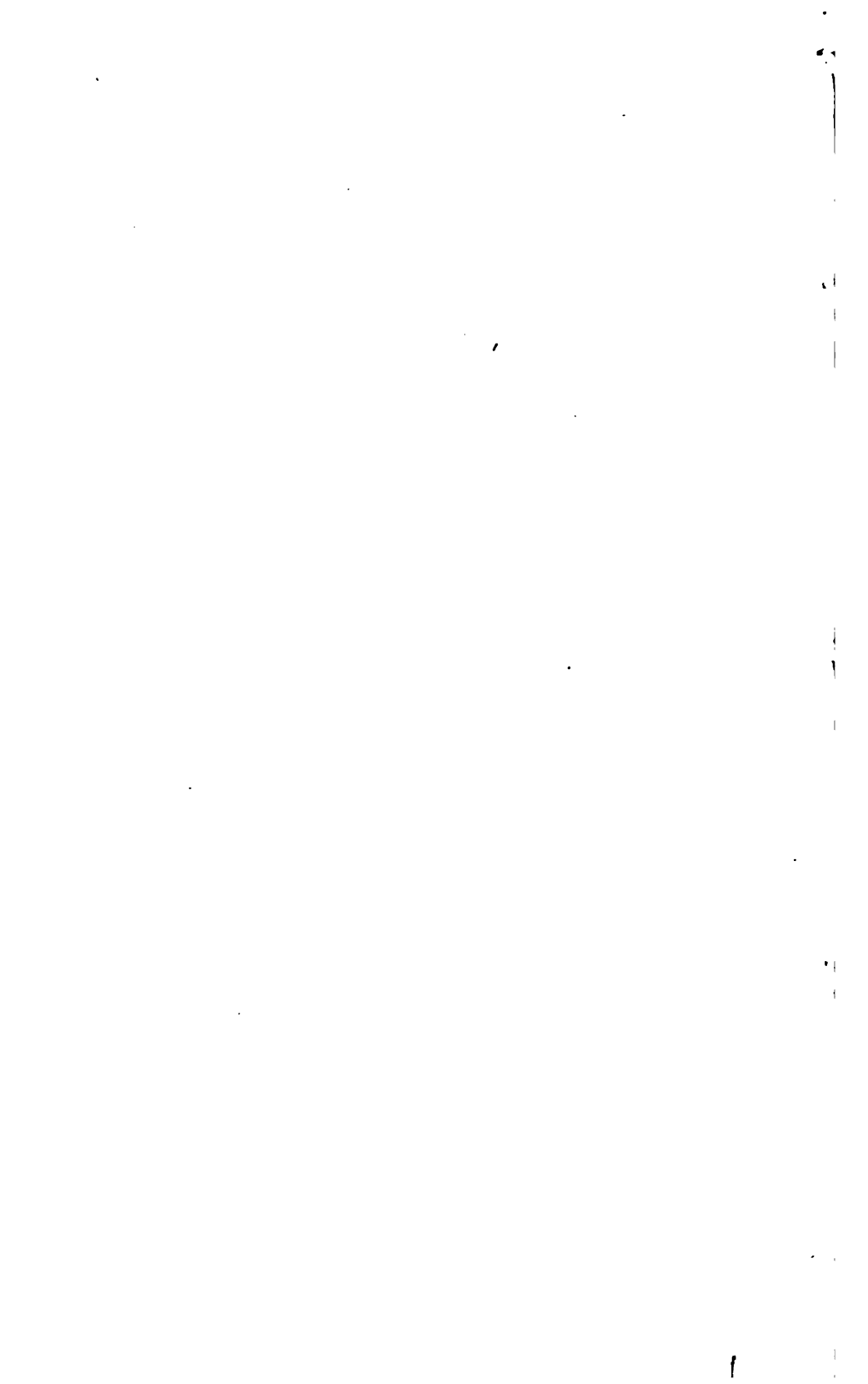
8

9

10

11

12



charge of the Louisville and Portland Canal, in addition to other lock and dam structures, one on the Wabash River, and those on the Green and Barren Rivers again, in Kentucky, where I was at first. In 1901, in the latter part of the summer, I was on duty in Pittsburg, and had charge of the improvements of the Monongahela, the Allegheny and the Ohio Rivers within the State of Pennsylvania. We had in that district under construction 7 locks and dams in the upper Ohio. Six of those were under construction. One was finished before I got there. We also had under construction 10 locks and 8 dams on the Monongahela River—that is, there were double locks at two of the dams and 3 locks and dams on the Allegheny River. I was on duty there between five and six years, and came from there here. One year I spent in the Philippines with the troops in the field; no river and harbor work.

CONCERNING THE GATUN DAM.

The CHAIRMAN. You are thoroughly familiar with the plans of the Gatun dam and of all the locks and dams?

Major SIBERT. Yes, sir; so far as completed. The detailed designs for the locks are not yet completed. You mean the general designs in the project adopted?

The CHAIRMAN. Yes.

Major SIBERT. Yes.

The CHAIRMAN. In your judgment, based upon your knowledge and experience concerning work of this character, is the plan proposed for the Gatun dam a practical one, and is it your judgment that the foundation is sufficient to make it entirely safe?

Major SIBERT. You were speaking of the Gatun dam?

The CHAIRMAN. Of the Gatun dam: yes, sir.

Major SIBERT. I think that the foundations there are such that a safe and practicable dam can be built, following, generally speaking, the adopted designs, modified as has been done already by the rock fills at the toes, so that the slope next to the lake can be materially reduced, as it is now in the changed section. The exact place from which the material must come for it is yet to be determined. I do not think the investigations are complete in that respect yet.

The CHAIRMAN. Is it your judgment that that material can be found in the vicinity of the Zone?

Major SIBERT. Yes; in the vicinity of the dam. Just how far from it I do not know, but from such investigations as have been made it seems that there exists in the lower Chagres Valley enough suitable material to build this dam. I do not think there should be any of that black, oozy, swamp stuff put in the dam.

Mr. MADDEN. None of it?

Major SIBERT. No; unless you would simply fill the interstices of the other material. But beyond that you would impart to all the material practically the same fluidity as that stuff.

The CHAIRMAN. Is there any difference of opinion among the engineers engaged on this work as to the stability of the Gatun dam constructed upon this foundation?

Major SIBERT. I think not.

Colonel GOETHALS. I can say that there is not.

Major SIBERT. I have heard none expressed by engineers that are on the work.

The CHAIRMAN. How many earth dams, if any, are there in the States that are as large or larger than the Gatun dam?

Major SIBERT. I can not answer that. There are a good many that have as much head against them, but none that I have heard of that has as big a section to stand the equivalent amount of water. That is, the proportions of the Gatun dam are greater in comparison with the head against it than those of any I have heard of, and in consequence the factor of safety is greater.

Mr. MADDEN. It is wider?

Major SIBERT. Yes.

Mr. MADDEN. Would that make it weaker?

Major SIBERT. I should not say so.

The CHAIRMAN. Is the dam that supplies the reservoir for the city of Oakland, Cal., greater than this?

Major SIBERT. I do not know as to the length of that dam, but its section is considerably less than the section of the Gatun dam.

The CHAIRMAN. So far as you know, there is no earth dam in existence anywhere that will have as great a factor of safety as the Gatun dam?

Major SIBERT. I consider the Gatun dam, as planned, as greater with respect to the factor of safety than any earth dam of its height that I have heard anything about.

The CHAIRMAN. How would it be with reference to earthquakes, with respect to an earth dam as compared with a concrete dam?

Major SIBERT. Well, I think it would be better than a concrete dam. I have read an article on the effect of the earthquakes on the dams out in California, and the line of disturbance, the line of the fault, went through some of them, both concrete and earth, and none of them lost their water; that is, all of them seemed to weather the storm fairly well.

ESTIMATED EXPENDITURE ON GATUN DAM FOR 1909.

The CHAIRMAN. Now, you estimate, Major, that you will require or expend in the next fiscal year \$2,218,243 on the Gatun locks. How do you arrive at that estimate?

Major SIBERT. We expect to accomplish by that time a certain amount of work; that is, we expect to excavate between two and three million cubic yards between now and that time, and to erect a plant upon the quarry for building the locks; that is, erect the quarry plant and crushing plant, and perfect the means of transportation of material to be shipped by water; to have that all accomplished by the 1st of January, 1909, and to be placing the concrete for the last six months of the year for which this estimate was made. That was the work to be accomplished, and the estimate was for that purpose.

The CHAIRMAN. Does this estimate of \$2,218,243 include the cement you require, or is that estimated for separately?

Major SIBERT. No; it includes the cement.

The CHAIRMAN. What is the basis upon which you made the estimates?

Major SIBERT. You mean of the cement?

The CHAIRMAN. No; the whole item here of \$2,218,243. You have estimated the amount of earth you can excavate, and the cost, and you have estimated the cost of the plant for the construction of the locks. What do you estimate for the cost of the plant for lock construction?

Major SIBERT. That is not to be paid out of this estimate. That is in the neighborhood of \$500,000, but that is to be purchased this year, before the fiscal year in question comes in. That is the erecting plant.

The CHAIRMAN. The erecting plant has already been appropriated for?

Major SIBERT. Yes, sir. We simply estimate the number of steam shovels that would be required to accomplish this excavation, and the division engineers were called upon to present a scheme of assistance, closing of dam gates, etc., including labor skilled and unskilled, in order to accomplish within the given time the work specified.

Mr. MADDEN. The boats to be constructed for the transportation of material for the locks—

Major SIBERT. That is not to be taken out of it.

Mr. MADDEN. The crushing plant and all is to be paid out of former appropriations?

Major SIBERT. Yes, sir. We have worked out a scheme of material and force of men necessary to accomplish the result in that time.

CONCRETE AND CEMENT.

Mr. MADDEN. What do you consider the cost of concrete?

Major SIBERT. We have estimated it at \$8.

Mr. MADDEN. That means the material brought from the United States, and your stone crushed and mixed, and everything?

Major SIBERT. We have had no experience that would justify changing that figure.

Mr. MADDEN. That is a big price, is it not?

Major SIBERT. We think we could put it in for that.

Mr. MADDEN. I think we could, too. You could not do it for \$5?

Colonel GOETHALS. We can tell you exactly when we find out what it costs to bring the sand and everything here.

The CHAIRMAN. What do you propose to pay for the cement?

Major SIBERT. \$1.70 a barrel, delivered.

Mr. GARDNER. You mean delivered here?

Major SIBERT. Yes, sir. We hope to have it delivered here in clinker form, and have it ground on the Isthmus, so as to reduce the cost of transportation and limit the cost of cooperage.

Mr. MADDEN. And also to prevent the deterioration of the material?

Major SIBERT. Yes, sir. In clinker form it does not deteriorate at all. It can be shipped just as coke is shipped. We have had that tested by experts in the States, and we propose to ask bids for procuring it.

Mr. MADDEN. That cement is about \$2.25—Portland cement?

Mr. BURLERSON. We pay \$3.50 for it in Texas.

Mr. MADDEN. You could buy it for \$1.60 three or four years ago, but they have a close corporation on it now.

Mr. KEIFER. You mean Louisville?

Mr. MADDEN. Oh, no; that is not Portland. You can buy Louisville for 60 cents. America makes better Portland cement than any other country.

Major SIBERT. We have quite an interesting report on this subject, which I have sent for. Maybe there would be something interesting in it for you.

PERSONNEL OF THE DEPARTMENT.

The CHAIRMAN. How many additional men during the next fiscal year will you have to employ in your department, of all classes?

Major SIBERT. I can not answer that question.

The CHAIRMAN. How many men have you in your department now?

Major SIBERT. 2,127 men.

Mr. KEIFER. What additional men will you require up to the time you commence putting in the cement for the locks? I understand it is about January, 1909, that that is to commence.

Major SIBERT. Yes. It is a pretty hard proposition to estimate. Of course, we will have to have all the men necessary to open up the quarry and erect the quarrying plant and the crushing plant. I could not tell exactly. Probably it will be a thousand men more than we have now.

Mr. MADDEN. When you made this estimate you must have figured out how many men you would be likely to employ, and how many yards of earth you would remove, and how much concrete you would put in, and how much stone you would produce, and all that sort of thing.

Colonel GOETHALS. In making up our estimate on locks and dams we estimated that that would involve excavating a certain amount of material; that we could lay 2,000 yards of concrete a day for six months, and at \$8 a yard for concrete and a dollar a yard for excavation we would require so much money for that part of the work.

Mr. MADDEN. Sixteen thousand dollars a day?

Colonel GOETHALS. Then, in order to prepare the estimates in accordance with the scheme adopted previously, we arranged the forces so as to give us the amount of money required; hence we are not prepared to state the number of men to be employed, but we are prepared to state that if we do the work we contemplate we will require that much money.

Mr. MADDEN. What I wanted to know was how you arrived at that amount of money.

Colonel GOETHALS. That is how; the amount we propose to excavate and the amount of concrete we expect to lay. What the increase of force will be it is difficult to tell.

Major SIBERT. That is, we started on the amount of work we wanted to do, and we put it up to the division engineer to work out the details for us in order to accomplish it, and checked that back in every way we could by taking the total yardage, and the total work to be accomplished, and the contemplated units of cost. The number of men, of course, is necessarily quite uncertain.

The CHAIRMAN. The salaries of the employees engaged in this work during the next fiscal year will be a very large item of that cost, will they not?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. You can not give any approximate estimate of that?

Colonel GOETHALS. No, sir. We figure concrete at \$8 a yard. That will include the quarrying force and the transporting force.

The CHAIRMAN. That is according to the rate some men are now receiving?

Colonel GOETHALS. At Gatun we will probably have to pay the same wages for the same class of work as the men receive in the Culebra Division. If not, the men will quit work at Gatun and try to get employment on the Culebra Division.

The CHAIRMAN. You do not want to get one division bidding against the other?

Colonel GOETHALS. No.

Mr. BRICK. That is true of all of them.

Major SIBERT. Here [indicating] is a report on the cement question; the various ways of getting it here; the practicability of getting it here in clinker form, etc.

The CHAIRMAN. Have you made any investigation to ascertain whether there is material here for first-class cement?

Major SIBERT. The geologists employed by the Commission have made an investigation and reported that there is.

The CHAIRMAN. Where is that material found?

Major SIBERT. The clay is the ooze at the bottom of Limon Bay and the rock is the coral rock just along the edges there in any amount.

Mr. MADDEN. That would involve the expenditure of a large amount of money for the plant, would it not?

Major SIBERT. That would be absorbed entirely in the cost of the work. There would be no use for it afterwards.

Mr. MADDEN. The fact is, you could probably buy it for less money the other way?

Major SIBERT. It is hoped that that would be so.

The CHAIRMAN. What system have you for testing cement?

Major SIBERT. We follow essentially the tests laid down by the American Society of Civil Engineers. We go through the regularly prescribed tests.

The CHAIRMAN. Have you had this material on the Isthmus tested?

Major SIBERT. The geologist had it made into cement by the Lehigh Valley Railroad laboratory. It has a laboratory in that section. It has been made into cement and has been tested now for six months. That is, they made a certain number of briquets and subjected them to the ordinary tests of twenty-eight days, three months, six months, and so on, and to-day it shows in its physical tests to be equal to any cement made in the United States.

The CHAIRMAN. Have you made any estimate of what aggregate amount of cement will be necessary in the construction of the locks?

Major SIBERT. In the neighborhood of four and one-half million barrels.

Mr. MADDEN. How many barrels will you need, say, on this work to put in 2,000 yards a day?

Major SIBERT. We propose to put in 2,000 yards at more than one place. We expect to accomplish, when we commence work at three places, probably 4,500 yards a day.

Mr. MADDEN. How much cement do you use to a yard of concrete?

Major SIBERT. One barrel, about.

The CHAIRMAN. Your daily consumption would be how much?

Major SIBERT. 4,500 yards a day, about 4,500 barrels.

The CHAIRMAN. How much would the plant cost with an output of that amount if you manufactured it here?

Major SIBERT. The cost of that plant, roughly speaking, would be between two and one-half and three million dollars. That is a very rough estimate. I have a statement here to the effect that a plant that would produce about 2,700 barrels a day would cost a million and a half dollars. It would be in the neighborhood of two and one-half and three million dollars.

The CHAIRMAN. Have you purchased any cement lately?

Major SIBERT. It is not in my department. I do not know the cost of it.

Colonel GOETHALS. We have been buying some.

The CHAIRMAN. What was the cost?

Colonel GOETHALS. \$1.64. That was American Portland cement.

Mr. TAYLOR. Delivered at Colon?

Colonel GOETHALS. Delivered at New York.

Mr. MADDEN. It costs about 35 cents to bring it down here?

Colonel GOETHALS. We estimate it at 50 cents a barrel.

Major SIBERT. This report intimates that we ought to get the cement here by shipping the clinkers at \$1.40 a barrel. I had a letter from the Atlas people in which they said they were prepared to enter into a contract to ship cement in clinker form. They gave us no figures, but said they were prepared to enter into a contract. There is also a Pittsburg concern with the same proposition, and I think the material comes from the neighborhood of Demopolis, Ala. The desire is to get figures from various sources so as to get all possible light on the figures from manufacturers of cement.

HYDROGRAPHIC STATIONS.

The CHAIRMAN. Have you the Hydrographic Stations in your department?

Major SIBERT. Yes, sir.

The CHAIRMAN. How many have you?

Major SIBERT. There are five essentially Hydrographic Stations, and we have Meteorological Stations, too; that is, Weather Bureau Stations, substantially. At one station we are determining the rate of evaporation, and we carry on the ordinary weather observations.

The CHAIRMAN. How much time will it require to complete the observations that are necessary in connection with the questions relating to the supply of water and evaporation?

Major SIBERT. The observations have been taken for a long time to get the flow of the Chagres River, but nearly all of them were taken with the anticipation that the dam would be built at Bohio, and in fact that there had been no change in the location of these stations before last April; but the building of the dam at Gatun takes in two other rivers—the Gatuncilla River and the Trinidad River; and the size of the spillway, which is of course quite a serious consideration in this case, depends upon the water that comes into the lake, and this service has been increased so as to take in those two rivers. But the work should be finished in two years; that is, in so far as the practical utility of that question is concerned. Our plans for the spillway must be completed at the end of this period for which we are now estimating. The meteorological work, of course, will go on, as it does in our own country, to the extent that Congress allows it to go.

The CHAIRMAN. To what extent will it be necessary to go on?

Colonel GOETHALS. I think we ought to carry it right through the work. It is not so expensive a factor. We want to determine the lowest low water during construction and the highest high water during this period.

The CHAIRMAN. Meteorologically?

Colonel GOETHALS. Yes.

The CHAIRMAN. We were talking about the hydrographic records.

Colonel GOETHALS. We want both; the rainfall records and the evaporation records, as well as discharge measurements.

Mr. BURLESON. In making your estimates for this service do you institute a comparison between the salaries paid here and those paid in the Weather Bureau for similar service?

Major SIBERT. I estimated in accordance with the salaries we were paying when I was charged with this work.

Mr. BURLESON. Take, for instance, the division engineer in charge of this.

Major SIBERT. That is Mr. R. M. Arango. His pay is less than the average division engineer here.

Mr. BURLESON. Was he connected with the meteorological work in the States?

Major SIBERT. No, sir; he is a native of Panama. He is a graduate of one of our technical schools; I think the Massachusetts Institute of Technology, at Boston.

Mr. BURLESON. They are making hydrographic observations in the United States throughout the different States, are they not?

Major SIBERT. Oh, yes.

Mr. BURLESON. Do they have a division engineer in each State?

Major SIBERT. That is under the Geological Survey. They, of course, have men who supervise certain sections of the country in which this work is being done.

Mr. BURLESON. Do you know what compensation is being paid?

Major SIBERT. No, sir; I do not. That is in the geological department.

Mr. BURLESON. You had nothing to do with the fixing of these salaries?

Major SIBERT. Practically; no, sir.

Colonel GOETHALS. That is the same way all along the line. It applies not alone to this division, but to all the work.

Mr. KEIFER. You spoke of other rivers that flowed into the lake that is to be formed.

Major SIBERT. The Gatuncillo and the Trinidad.

Mr. KEIFER. Are those the only ones of consequence?

Major SIBERT. There are others, but those two are quite big streams, both of them.

Mr. BURLESON. Do you know of any duties performed by these hydrographic and meteorological observers on the Zone that are not performed by men engaged in similar service connected with the Geological Survey and the Agricultural Department in the United States?

Major SIBERT. None; except that the service here is harder. The stations are in remote localities where the living is difficult, and the communications are very difficult in getting their supplies. The service is harder from a climatic standpoint. In other ways the duties are substantially the same, so far as I know.

The CHAIRMAN. Have you anything further to say, Major, in regard to your estimate?

Major SIBERT. Nothing at all, sir.

The following statement and table were filed by Major Sibert:

CULEBRA, November 9, 1907.

Up to June 30, 1907, no system of systematic engineering cost keeping was in existence in the Lock and Dam Department. The total cost of the work was distributed by the Auditor under various heads, very few of which heads enabled one to reach conclusions as to engineering cost. The total cost, however, obtained in the best way possible from the various heads under which the expenses were kept, shows the cost of the excavation and other work, as indicated on the attached table, to June 30, 1907.

The inauguration of a new system of cost keeping was fully made in August, and September is the first month in which we have at present such cost in the detail to be followed in the future. We have it for July and August in an incomplete form, which incompleteness will be overcome when the Disbursing Office has been able to change from the old system of cost keeping to the new and has its books to date. In the future, the engineering cost keeping will be independent of the Disbursing Office, and can, of course, be checked by the Disbursing Office records.

Copies of the September engineering costs on the Gatun locks and dams are attached.

WM. L. SIBERT,

Head of the Department of Lock and Dam Construction.

Statement of cost from inception of the work to June 30, 1907.

[Department of Lock and Dam Construction.]

Gatun locks.—This includes all cost chargeable to Gatun locks, in so far as it can be obtained, except cost of plant and buildings which are classified as plant: Cost, \$312,478.97; excavated, 489,663 cubic yards. Assuming that the entire amount was spent for excavation, the cost of excavation per cubic yard would be 63.82 cents.

La Boca locks.—Actual work of excavation was just commencing—cost to date being engineering and preparatory. Cost, \$60,749.55; excavated, 538 cubic yards.

Pedro Miguel locks.—The cost to date has been for engineering and preparatory work. Cost, \$35,008.42. In addition to the above cost, the Culebra Division excavated 162,094 cubic yards from the lock site, which amount is included in the total of the Culebra Division excavation at their prevailing cost per unit.

Gatun dam and spillway.—The actual excavation had just been started. Charges are principally for engineering and preliminary work. Cost, \$164,286.60; excavated, 3,832 cubic yards.

La Boca dam and spillway.—The actual excavation had just been started. Charges are principally for engineering and preliminary work. Cost, \$164,532.79; excavated, 10,792 cubic yards.

Pedro Miguel dam.—The cost to date has been for engineering. Cost, \$1,362.26.

RÉSUMÉ.

	Cost.	Excavated.
		<i>Cubic yards.</i>
Gatun locks.....	\$312,478.97	489,663
La Boca locks.....	60,749.55	538
Pedro Miguel locks.....	35,008.42	(*)
Gatun dam and spillway.....	164,286.60	3,832
La Boca dam and spillway.....	164,532.79	10,792
Pedro Miguel dam.....	1,362.26	
Total.....	699,418.59	504,825

*In addition to total shown above, 162,094 cubic yards were excavated by the Culebra Division from the Pedro Miguel lock site.

WM. L. SIBERT,

Head of the Department of Lock and Dam Construction.

CULEBRA, November 9, 1907.

Isthmian Canal Commission—Report of excavation for month of September, 1907.

GATUN LOCKS DIVISION.

Items.	Labor.	Coal.		Supplies, including drayage, etc.	Repairs.	Explosives.	Super- vision.	Time- keep- ers.	Clerks and watch- men.	Charges from me- chanical division, repairs.	Charges from dis- bursing office, subsis- tence.	Cost, total.	Total units.	Cost per cubic yard.
		Pounds.	Cost.											
Mining, steam-shovels.	\$3,841.25	23,700	\$67.18	\$66.08	\$37.21	\$2,239.32	\$150.00			\$3,183.18	\$2.10	\$6,401.64	87,423	7
Loading, cableways.	4,042.31	746,500	2,113.36	173.49	116.95		232.91					9,813.30	87,423	11
Transportation to dumps.	5,783.89	973,070	2,635.73	537.46	77.03		232.92			4,651.08		14,020.13	87,423	16
Dumps.	5,058.96			46.46			150.00					5,657.41	87,423	7
Tracks.	9,668.39			257.53			175.00					9,900.92	87,423	11
Division office and supervision.	1,060.37			305.69			998.59	\$574.36	\$543.15		8.40	3,496.56	87,423	4
Total	29,663.17	1,742,270	4,866.27	1,439.32	230.19	2,239.32	1,939.42	574.36	543.15	7,784.26	10.50	49,289.96	87,423	56

GATUN DAM (SPILLWAY) DIVISION.

Mining.	\$2,363.09	a 163,520	\$359.99	\$28.62	\$3.44					\$1,635.70		\$4,290.74	36,315	11.8
Loading, cableways.														
Transportation to dumps.	1,660.78	{ a 461,440 b 63,300	1,015.58 179.44	84.25						1,112.56		4,061.61	36,315	11.1
Dumps.	4,031.29										\$130.50	4,161.79	36,315	11.5
Tracks.	6,035.30			1,185.05	157.95							7,388.30	36,315	20.3
Division office and supervision.	102.79			4.90			\$1,294.56	\$614.53	\$611.69			2,628.47	36,315	7.2
Total	14,202.25		1,554.91	1,312.82	161.39		1,294.56	614.53	611.69	2,648.26	130.50	25,170.16	36,315	61.9

a At \$4.93 per ton.

b At \$6.35 per ton.

CHESTER HARDING, Division Engineer.

(Signed)

STATEMENT OF MR. H. H. ROUSSEAU, U. S. NAVY, COMMISSIONER IN CHARGE OF MUNICIPAL ENGINEERING, MOTIVE POWER AND MACHINERY, AND BUILDING CONSTRUCTION.

The CHAIRMAN. Mr. Rousseau, you are one of the Isthmian Canal Commissioners?

Mr. ROUSSEAU. Yes, sir.

The CHAIRMAN. You have been down here how long?

Mr. ROUSSEAU. Since March 22.

The CHAIRMAN. What department of the work have you charge of?

Mr. ROUSSEAU. The Motive Power and Machinery, Municipal Engineering, and Building Construction.

The CHAIRMAN. You submitted the estimates for motive power and machinery, and municipal engineering, etc.?

Mr. ROUSSEAU. Yes, sir.

PERSONNEL OF THE DEPARTMENT.

The CHAIRMAN. Do you know how many men you have in your immediate charge?

Mr. ROUSSEAU. 7,400 now. The number is reducing at the rate of 500 a month, because in these two divisions, Building Construction, and Municipal Engineering, the construction work is gradually approaching completion, and after that it will be merely maintenance and repairs. That is under the appropriations for this fiscal year.

The CHAIRMAN. How much less do you estimate for your department for the next fiscal year than has been appropriated for your department in the current fiscal year?

Mr. ROUSSEAU. Municipal Engineering, one million less than was expended last year, and Building Construction about 50 per cent of what was spent last year.

The CHAIRMAN. How do your estimates compare with the expenditures for the current fiscal year?

Mr. ROUSSEAU. I think that the expenditures for the present fiscal year will be about halfway between last year and the estimates for next year.

RATES OF COMPENSATION.

The CHAIRMAN. What compensation do you pay to your skilled mechanics and workmen in your department?

Mr. ROUSSEAU. For the greater part of the mechanics the first-class pay is 65 cents an hour, second-class 56 cents, and third-class 44 cents. That is for the white mechanics. The men on the silver roll are paid from 32 cents per hour down. Some of them are on the monthly basis, and some negroes are skilled mechanics and get as high as \$1, silver, per hour.

The CHAIRMAN. A skilled mechanic who is a negro is paid as high as a dollar, silver, per hour?

Mr. ROUSSEAU. Yes; that is 50 cents gold an hour. There are but a few of those.

The CHAIRMAN. Have you many of those now?

Mr. ROUSSEAU. Very few. They are mostly American negroes from the Southern States.

The CHAIRMAN. What clerical force do you have under you?

Mr. ROUSSEAU. Each one of the three divisions has its own clerical force. The clerical force of the Building and Construction Department is concentrated in this office, as well as the Motive Power and machinery clerical force.

The CHAIRMAN. The rate of compensation of the men employed in your department is practically that of the men in the other departments for similar work?

Mr. ROUSSEAU. Yes, for similar work. We tried to make it as nearly as possible the same, in order to avoid discontent.

The CHAIRMAN. Does the Commission have many complaints on account of favoritism, or alleged favoritism?

Mr. ROUSSEAU. We had last Spring a large number of complaints, both as to favoritism and as to insufficient wages, particularly on account of insufficient wages, from per diem mechanics. Since then the number of complaints has been gradually growing less, and it is very seldom that we have written complaints now. The men are accustomed to go to the head of their division to obtain redress in case of a grievance, and they know they have the right of appeal to the Chairman or to me, and their cases are always carefully investigated every time they make an appeal.

The CHAIRMAN. What do you pay your pattern-makers?

Mr. ROUSSEAU. Pattern-makers, since the middle of September, have been receiving 75 cents an hour. We have less than 20. They are all concentrated at the Gorgona shops. They were receiving 65 cents an hour before that, and we have been unable to keep pattern-makers of the first grade. I think there are only three who have been here for a year or more. They would come down here and would not remain.

The CHAIRMAN. Have you had any difficulty since you have been in charge of your department in securing all the skilled mechanics required to do the work?

Mr. ROUSSEAU. Yes, sir. It is difficult even now to get mechanics of the grade that we want. There is constant complaint from master mechanics at the shops when forced to get out work economically and speedily, and the complaint is that they are handicapped from not having mechanics of the same scale that we have in the United States. We are hoping, however, to induce the higher grade mechanics to come down here. The report of the mechanical division in the last fiscal year showed that a few over a thousand men were brought down and employed from the States, and that over 600 of those men returned within the year, leaving us only about 36 per cent, or enabling us to retain only about 36 per cent. It is that condition that we are trying to improve; that is, to retain a larger percentage of the men who are recruited; and the idea is to recruit a better grade of men and make the conditions such that we can retain them after we get them, and that will enable us to do the work very much more cheaply. Even with all the inducements of higher pay down here, and other allowances, the men, especially the unmarried men, seem to get dissatisfied after they have been here a few months, and want to get back to the States. Of course, you know that in other cases, after they have been in the States for a while they want to come back again; but the fact remains that the mechanical division has been very much handicapped by the migratory character of its employees, as shown by the records.

STATEMENT OF BUILDINGS CONSTRUCTED, REPAIRED, AND DESTROYED.

Mr. MADDEN. Will you be kind enough to state the character of the construction of these buildings?

Mr. ROUSSEAU. I have a printed list which I would like to read or submit, describing them.

Mr. MADDEN. Is it very long?

Mr. ROUSSEAU. No. Here it is [submitting same]:

Statement of buildings repaired and constructed, demolished, remaining, and totals, from May 1, 1904, to June 30, 1907.

[Submitted by Commissioner H. H. Rousseau at hearing at Culebra, November 11, 1907.]

Town or railroad station.	Number on hand May 1, 1904.	Number destroyed.	Number repaired to June 30, 1907.	Balance to be repaired.	Number constructed to June 30, 1907.	Class of construction.	Number on hand June 30, 1907.
Palo Seco.....					8	Hospital.....	8
Taboga.....	8		2	6	1	do.....	9
Naso.....	3		1	2			3
Farlan.....	3			3			3
Flamenco.....					2	Hospital.....	2
La Boca.....	64	10	36	18	35	29 quarters.....	89
						3 storehouses.....	
						1 fire department building.....	
						1 mess hall.....	
						1 dock.....	
Panama City.....	2		3		1	Storehouse.....	4
La Section.....	23		8	15	1	Quarters.....	24
Ancon Hospital.....	91	1	66	25	85	57 quarters.....	175
						1 mess hall.....	
						14 hospitals.....	
						2 shops.....	
						1 storehouse.....	
						1 jail.....	
						1 fire department building.....	
						1 chapel.....	
						2 offices.....	
						1 hotel.....	
						4 miscellaneous.....	
La Sabanas.....					1	Jail.....	1
Corozal.....	31		31		23	1 hotel.....	54
						20 quarters.....	
						2 mess halls.....	
Rio Grande Interior.....	7			7			7
Butte Cardenas.....	2			2			2
Exclude 10.....	13			13			13
Miraflores.....	31		28	3			31
Pedro Miguel Tank.....	21		7	14			21
Exclude 9.....	11			11			11
Pedro Miguel.....	24	6	9	9	33	23 quarters.....	61
						3 storehouses.....	
						3 offices.....	
						1 fire department building.....	
						2 mess halls.....	
						1 car-repair shed.....	
40 Mile Siding.....	20		20		10	10 quarters, etc.....	30
Kilometer 58000.....	3			3			3
Exclude 7 and 8.....	1			1			1
Exclude 8.....	7			7			7
Paraiso.....	87	8	57	22	57	53 quarters.....	126
						1 mess hall.....	
						1 hospital.....	
						1 commissary.....	
						1 fire department building.....	
Carthagencis.....	26	2	22	2	8	8 quarters, etc.....	32
Exclude 7.....	7			7			7
Cucaracha.....	31	1	25	5	9	7 quarters.....	39
						1 mess hall.....	
						1 storehouse.....	
Enterprise.....	38	25	2	9	21	21 quarters.....	32
Rio Grande.....	8	2	6		27	26 quarters, etc.....	23
						1 corral.....	
Cerro Germain.....	8		8		9	5 quarters.....	17
						1 shop.....	
						2 storehouses.....	
						1 mess hall.....	

Statement of buildings repaired and constructed, etc.—Continued.

Town or railroad station.	Number on hand May 1, 1904.	Number destroyed.	Number repaired to June 30, 1907.	Balance to be repaired.	Number constructed to June 30, 1907.	Class of construction.	Number on hand June 30, 1907.
Carro Lirio.....	40		40			91 quarters.....	40
Culebra.....	113	21	80	12	115	4 storehouses.....	207
						1 band stand.....	
						1 clubhouse.....	
						1 lodge hall.....	
						1 fumigation building.....	
						1 schoolhouse.....	
						4 hospital buildings.....	
						2 jails.....	
						1 hotel laundry.....	
						1 fire department building.....	
						2 shops.....	
						2 office buildings.....	
						1 hotel.....	
Lirio.....	30	3	27		7	2 miscellaneous.....	
						3 quarters.....	34
						1 planing mill.....	
						1 office.....	
						2 miscellaneous.....	
Carro.....	21		21		5	5 quarters, etc.....	26
Empire.....	92	4	64	24	80	59 quarters.....	168
						1 jail.....	
						5 offices.....	
						1 mess hall.....	
						1 clubhouse.....	
						7 storehouses.....	
						1 fire department building.....	
						1 electric light plant building.....	
						1 hotel laundry.....	
						1 fumigation house.....	
						1 ice platform.....	
						1 hospital.....	
Cumetto.....	60	6	49	5	9	9 quarters, etc.....	63
Casa Blanca.....	48	12	36		3	3 quarters, etc.....	30
Las Cascadas.....	62	7	53	2	43	5 shops.....	98
						33 quarters.....	
						1 hotel laundry.....	
						1 mess hall.....	
						1 office.....	
						2 miscellaneous.....	
Buena Vista.....	49	1	43	5	2	2 quarters.....	50
Haut Obispo.....	58		57		12	10 quarters, etc.....	69
						1 hospital.....	
						1 storehouse.....	
Bas Obispo.....	60	12	45	12	9	3 quarters.....	66
						1 storehouse.....	
						2 pump sheds.....	
						1 jail.....	
						1 stable.....	
						1 commissary.....	
						1 quarters.....	
Alhajuela.....	12	5	2	5	1		8
Cruces.....	5			5			5
Las Delicias.....	5			5			5
Gamboa.....	27	5	22		12	11 quarters.....	34
						1 mess hall.....	
Chagres.....	25		20	5	8	8 quarters.....	33
Santa Cruz.....	61		43	18	1	1 quarters.....	62
Matachin.....	13	2	7	4	2	1 quarters.....	13
						1 jail.....	
Bas Matachin.....	50	4	34	12	36	32 quarters.....	82
						4 shops.....	
Kilometer 4200.....	13	2		11			11
Kilometer 4400.....	12	1		11			11
Kilometer 1000.....	41	9	32		44	33 quarters.....	76
Gorgona encampment.....						1 sawmill.....	
						1 jail.....	
						1 mess hall.....	
						4 storehouses.....	
						1 hotel laundry.....	
						1 band stand.....	
						1 clubhouse.....	
						1 fire department building.....	

Statement of buildings repaired and constructed, etc.—Continued.

Town or railroad station.	Number on hand May 1, 1904.	Number destroyed.	Number repaired to June 30, 1907.	Balance to be repaired.	Number constructed to June 30, 1907.	Class of construction.	Number on hand June 30, 1907.
Enterprise.....	40	8	21	11			32
Kilometer 41600.....	4			4			4
Caballo Viejo.....	18		14	4	11	11 quarters, etc.	29
Juan Grande.....	13	3	10		5	4 quarters, etc.	15
Mamel.....	9	1	8		6	1 mess hall	
						5 quarters	14
						1 mess hall	
Culo Seco.....	5			5			5
Excluse 2.....	2			2			2
Coca Lane.....	18			18			18
Caimito Mulato.....	27	1		26			26
Enterprise.....	14			14			14
San Pablo.....	60	10	10	40	2	1 quarters	52
						1 jail	
New Town.....	2			2			2
Barbacoa.....	7			7			7
Tabernilla.....	33	9	24		35	28 quarters.	59
					1	1 jail	
						2 mess halls	
						1 office	
						2 storehouses	
						1 pump house	
Ex Enterprise.....	17	3	14				14
Sin La Vole du Kilometer 29.....	6	1	5		1	Cook shed	6
Chagres.....	14	2	2	12			12
Frijoles.....	2				1	Cook shed	33
Chagres.....	33		20	33			33
Bohio.....	48	1		27			47
New Town.....	1			1			1
Derivation 4.....	5			5			5
Excluse 1.....	18			18			18
Derivation 3.....	3			3			3
Fenas Blancas, Arrib.....	3			3			3
Fenas Blancas, Q. L.....	7			7			7
Vamos Vamos.....	1			1			1
Gatun.....	5		1	4	92	73 quarters.	97
						1 jail	
						2 mess halls	
						8 storehouses	
						3 offices	
						1 hospital	
						4 miscellaneous	
Mindl.....	3			3			3
Mount Hope.....	19		7	12	5	1 storehouse	24
						2 quarters	
						1 jail	
						1 boiler house	
Cristobal and Fox River.....	233	8	129	96	93	67 quarters	318
						12 hospital buildings	
						1 jail	
						1 jail addition	
						3 storehouses	
						1 fire department building	
						2 shops	
						1 clubhouse	
						1 lodge hall	
						2 offices	
						1 band stand	
						1 mess hall	
Total.....	2,145	197	1,270	678	971		2,919

DIFFERENCE IN COMPENSATION ON THE CANAL ZONE AND IN THE UNITED STATES.

The CHAIRMAN. Mr. Rousseau, do your men enjoy all the privileges and advantages that the men in the other divisions enjoy with reference to houses, and fuel, and light, etc.

Mr. ROUSSEAU. Yes; of the grades corresponding to their pay.

The CHAIRMAN. That is true of all the employees, no matter in what division they are employed?

Mr. ROUSSEAU. Yes. There is no discrimination as to mechanics of the same class.

The CHAIRMAN. Have you determined the difference between the compensation paid to the men in your department and the compensation which men in the States receive for like or similar service?

Mr. ROUSSEAU. Yes, sir. We made a careful investigation last Spring when we were in receipt of so many requests and petitions from mechanics in the shops. The object of our inquiry was to obtain not only information as to what wages were being paid, but also to establish a logical increase to the men down here.

Mr. GARDNER. Requests and petitions for what?

Mr. ROUSSEAU. For increased wages. After a good deal of consideration and investigation we got up a table, here, showing the wages paid for mechanics in all the different Navy-Yards in the country, that being a branch in the governmental service where the work was similar, and covering the whole seaboard on both coasts. We did not cover the interior of the country, but took the average data obtained, and in addition we received the latest reports from the Bureau of Labor. But the data we obtained through the Naval Board seemed to be more recent and more satisfactory, and the table gives the average in the different trades that we employ, the average pay per day, and the percentage of increase paid by the Commission, based upon the 65 cents an hour rate, or \$5.20 for eight hours' work. Here it is:

ISTHMIAN CANAL COMMISSION,
Culebra, Canal Zone, June, 1907.

Comparison of pay on the Isthmus of Panama for certain specified trades with present pay of first-class mechanics in the same trades in ten leading navy-yards in the United States, to accompany report to the honorable the Secretary of War, with reference to application for increase in pay made by pattern makers.

	Blacksmith, general.			Blacksmith, machine.			Bricklayer, mason, brick.			Boiler maker, general.			Carpenter, house.			Molder, loam.			Painter, house.			
	\$5.20, per cent of increase on Isthmus.			\$5.20, per cent of increase on Isthmus.			\$5.76, per cent of increase on Isthmus.			\$5.20, per cent of increase on Isthmus.			\$5.20, per cent of increase on Isthmus.			\$5.20, per cent of increase on Isthmus.			\$4.48, per cent of increase on Isthmus.			
	Per cent.			Per cent.			Per cent.			Per cent.			Per cent.			Per cent.			Per cent.			
Portsmouth, N. H.	\$3.04	71	\$3.04	71	\$3.76	53	\$3.28	58	\$3.04	71	\$3.76	58	\$3.04	71	\$3.76	58	\$3.04	71	\$3.76	58	\$3.04	47
Boston, Mass.	3.36	55			4.08	41	3.36	55	3.28	58	3.60	44	3.28	58	3.60	44	3.28	58	3.60	44	3.28	47
Brooklyn, N. Y.	3.68	41	3.68	41	4.80	20	3.68	41	3.76	38	3.68	41	3.76	38	3.68	41	3.76	38	3.68	41	3.76	47
League Island, Pa.	3.52	48	3.52	48	4.80	20	3.44	51	3.20	62	3.28	58	3.20	62	3.28	58	3.20	62	3.28	58	3.20	47
Washington, D. C.	3.76	38			4.80	20	3.36	55	3.76	38			3.76	38			3.76	38			3.76	47
Norfolk, Va.	3.28	58			5.04	14	3.52	48	3.52	48	4.80	20	3.52	48	4.80	20	3.52	48	4.80	20	3.52	47
Charleston, S. C.	3.28	58	3.52	48	4.00	44	3.52	48	3.04	71	3.52	48	3.04	71	3.52	48	3.04	71	3.52	48	3.04	47
Pensacola, Fla.	3.68	41			4.00	44	3.68	41	3.20	62	3.76	38	3.20	62	3.76	38	3.20	62	3.76	38	3.20	41
Mare Island, Cal.	4.24	23	4.24	23	5.60	3	4.00	30	4.24	23	4.32	20	4.24	23	4.32	20	4.24	23	4.32	20	4.24	19
Puget Sound, Wash.	3.84	35	3.84	35	6.00		3.84	35	3.76	38	3.84	35	3.76	38	3.84	35	3.76	38	3.84	35	3.76	19
Average	3.57	46	3.64	43	4.69	25	3.57	46	3.48	49	3.70	40	3.48	49	3.70	40	3.48	49	3.70	40	3.48	40

they were receiving 47 per cent more than similar work was receiving in the States.

Mr. ROUSSEAU. Very possibly.

The CHAIRMAN. Is it not a fact that all classes of mechanics in Navy-Yards receive higher pay than mechanics receive in private establishments, or establishments owned and operated by corporations in the States?

Mr. ROUSSEAU. The Navy pay is based on the pay of the highest grade of the mechanics in the vicinity, and the average might be higher, as you say.

The CHAIRMAN. I think the Navy pay is above the average.

Mr. ROUSSEAU. It is above the average; yes, sir.

The CHAIRMAN. In figuring out the percentage of excess which your men receive over what men receive for similar work in the States, does that excess include longevity pay?

Mr. ROUSSEAU. No, sir; straight pay; so that after one year's service the excess paid here becomes even greater, and so on after every year's service.

The CHAIRMAN. This longevity pay, you say, would result in making the percentage still larger?

Mr. ROUSSEAU. Yes; still larger.

The CHAIRMAN. And it does not include the value of the privileges and advantages which the employees here have?

Mr. ROUSSEAU. No, sir.

The CHAIRMAN. In other words, this difference in the pay received here above what they receive in the States is the difference in actual compensation, exclusive of all the privileges and advantages they have here, which they have not in the States, and exclusive of the longevity pay?

Mr. ROUSSEAU. Yes, exclusive of longevity pay and the advantages you speak of. In this connection I have a copy of the petition presented to the Commission through the master mechanic at the Gorgona shops.

The CHAIRMAN. Before you present that, I want to ask you a further question on the subject I was just interrogating you. Have you made any estimate of what the money value to the employees is of these privileges that we have been speaking of?

Mr. ROUSSEAU. It would be very easy to make.

Colonel GOETHALS. That is part of the inquiry you made in writing. I have the data there.

Mr. ROUSSEAU. It would be at least a dollar a day.

Mr. TAYLOR. Rent, fuel, light, water, and so forth, only a dollar a day?

Mr. ROUSSEAU. That is, for bachelors.

The CHAIRMAN. It would be more than that for families?

Mr. ROUSSEAU. Very much more.

Mr. TAYLOR. That is what I wanted to understand; whether you meant a dollar a day for a family man or for a bachelor.

The CHAIRMAN. You were speaking of a petition.

Mr. ROUSSEAU. Yes. Here it is [submitting same]. I have several copies of it. It shows the pay in other countries than the United States to boiler makers. It is presented by the men in the Gorgona shops.

Following is the petition referred to:

GORGONA SHOPS,
GORGONA, May 23, 1907.

Mr. E. C. CUMMINGS,
Master Mechanic, Gorgona Shops.

DEAR SIR: As Mr. Rousseau, Supervisory Engineer, gave us the privilege of adding to or saying anything that would furnish information to him in regard to wages referred to in the boilermakers' letter to the Grand Lodge of the I. B. of B. M. and I. S. of America, and also to give some statistics of wages at different places and to give some reasons why we should have an increase over the present rate of 65 cents per hour to 80 cents per hour, we submit the following rates paid in the United States and in Mexico and other tropical countries:

Globe, Clifton, Jerome, and Douglas, Ariz.	\$4.50 per day of 9 hours
Los Angeles, Sacramento, San Luis Obispo, and Oakland, Cal.	4.30 per day of 10 hours
Butte and Anaconda, Mont.	4.50 per day of 8 hours
Houston and San Antonio, Tex.	4.00 per day of 10 hours
El Paso, Tex., railroad shops.	4.50 per day of 10 hours
El Paso, Tex., contract shops.	4.75 per day of 10 hours

The Greene Consolidated Copper Company, Cananea, Mexico, \$5 per day of nine hours, American gold; work every day in the month, but work on Sunday until 12 o'clock noon and get paid for full day.

All expenses paid for the above places on outside work.

In South Africa and India, where the climatic conditions are similar to those of the Isthmus, the boiler work is done chiefly by Englishmen sent by their Government. The wages paid in England are not as high as those paid in the United States. We desire to call your particular attention to the increases they receive in the following places:

SCALE OF WAGES PAID BOILERMAKERS IN SOUTH AFRICA, CEYLON, AND INDIA.

Belra Railroad, at Fort Salisbury and Bulawayo, 32s. 6d. per day of eight hours, United States currency equivalent, \$7.80.

Sierra Leone, West Coast Railroad, pays for the first year 24s. per day of eight hours, United States currency equivalent, \$5.76, rising in the third year to 30s. or \$7.20 per day of eight hours; four months vacation with full pay and expenses to England and return after eight months' service.

Boiler makers assembling structural-iron work on the Rand, in South Africa, 30s., or \$7.20, per day of eight hours; extra pay when sent on the road.

All gold mines on the Rand—Rosebud, New Primrose, Robinson Consolidated, Toughstrauss, and several others—pay 25s., or \$6, for eight hours per day; boiler makers with a knowledge of sheet-iron work and structural-iron work, 30s., or \$7.20, per day of eight hours.

Mashonaland Railroad, Africa, 32s. 6d., or \$7.80.

Ceylon Railroad, island of Ceylon, 27s., or \$6.48, per day of eight hours.

Bengal Mappha Railway, Bengal, also India State Railway, pay 500 rupees per month—English currency—£48, or \$240 per month on a three-year contract; nine months' vacation with pay and first-class passage to England after two years and three months' service.

The Woolhauser mine and Village Deep mine, South Africa, pay a bonus of 7½ per cent per month to all white employees.

City and Suburban Iron Works, Johannesburg, pay boiler makers 28s. 6d. to 30s. 6d. per day, or \$6.84 to \$7.32. This is an American firm.

Wright & Boaz Structural Company, a Scotch firm at Johannesburg, pay boiler makers for riveting and calking 25s. 6d., or \$6.12, per day; general jobbing boiler makers, 28s. 6d., or \$6.84, per day; flangers and layers-out, 30s. 6d., or \$7.32, per day.

Hongkong Dockyard Company pay 28s. 6d., or \$6.84, per day, with 50 per cent extra bonus on repair work. Bonus for service is two months' extra pay per annum.

To boiler makers on construction of the irrigation dam of the Nile, Egypt, the British Government pays 35s., or \$8.40, per day of eight hours.

Sir W. Arrol, a Glasgow contractor, has boiler makers on construction of docks and fortifications at Valetta, Malta, whom he pays 26s., or \$6.24, per day, with a monthly bonus of £14, or \$70.

Russell, a Greenock, Scotland, contractor for the British Government, pays boiler makers on the gold coast of Africa, on extension of railways and dry

docks, 32s., or \$7.68, per day, with a four months' vacation after eight months' service with full pay and first-class passage to England free, also first-class fare paid out again if on contract for three years, and four months' vacation after every eight months' service. This firm requires a three-year contract.

Our work is laborious, requiring a greater amount of physical exertion than any other trade on the Isthmus, and more so, on account of inferior help, than in the States. Should any of us lose an eye through carelessness of help we have no redress, such as we would have working for private firms in the United States.

After ten years' service boiler makers are not fitted for any other occupation, on account of defective hearing, and this we feel is a reason for paying more than to other trades.

In a great many cases men coming to the Isthmus must cancel their insurance policies, which takes away the protection of our families.

We therefore feel, from the foregoing, that 80 cents per hour is not excessive pay for boiler makers on the Isthmus, and earnestly request your careful consideration and an early reply.

Very respectfully,

WM. H. WITMER.
R. S. BRADY.
JAMES F. MARTIN.
GEORGE B. HOLLAND.
JOHN A. ERICSON.
JAS. HARRISON.
JAMES J. MCLEAN.
ROBERT M. DISCOLL.
JAS. J. DEVEREUX.
FRANK MCROBBIE.
A. BEDARD.
THOMAS BREEN.
C. H. YOUNG.
F. F. RYAN.
JOHN MCCONAHY.
JOHN W. MILLER.
JOHN HARKINS.
JOHN C. KANE.
JACK WILSON.
CHAS. V. TAYLOR.
WILLIAM WEST.
SAMUEL SMITH.
PETER NADO.
THOS. J. INGHAM.
SAMUEL COOPER.
JAMES BREEN.

Mr. BRICK. I would like to have the per cent of excess pay to the labor here over men in the States.

Mr. ROUSSEAU. The minimum is 25 per cent for bricklayers, but as we carry only less than half a dozen of those, that is hardly fair. I will leave that out.

Mr. BRICK. Give us the next.

Mr. ROUSSEAU. The smallest percentage of increase, subject to limitation, is 39 per cent, to the coppersmiths.

Mr. BRICK. To what class is given the maximum percentage of increase?

Mr. ROUSSEAU. The maximum is given to the plumbers and the tinsmiths. They are both the same; 55 per cent.

EMPLOYMENT OF MEMBERS OF EMPLOYEES' FAMILIES.

The CHAIRMAN. Colonel Goethals, there is a question I wanted to ask: To what extent are members of the families of employees given employment by the Commission?

Colonel GOETHALS. Not very extensively. There are some few women employed as coupon counters, and some copyists.

The CHAIRMAN. They are wives and daughters of employees?

Colonel GOETHALS. Yes, sir; some few are employed as telephone operators, and some few as teachers.

The CHAIRMAN. Are the young men of families given employment, too?

Colonel GOETHALS. In some instances; a few.

Mr. KEIFER. The number is not many, all told?

Colonel GOETHALS. No, sir.

DIFFICULTY OF RETAINING MECHANICS.

Mr. GILLET. Have you any explanation in your mind why, when they are getting 40 or 50 per cent in excess of their wages in the States, why you can not keep them—why they go home?

Mr. ROUSSEAU. I have had an idea in the past that possibly they have come down here—in fact I know in some instances men have come down here—expecting that in the shops it was what is known as “a Government proposition;” that it was high pay and not very hard work. As a matter of fact, so far as I know, the men in the shops are required to work very hard, and it is very fatiguing and enervating work in this climate. Down here it is much harder on them, I think, than in the States. We try to run the shops in the same way as railroad shops are run in the States. The master mechanics of different shops are railroad men, and they are given a free hand, so far as practicable, in enforcing discipline and in being held responsible for the results.

Mr. GILLET. You think it is largely because it is harder work, owing to the climate?

Mr. ROUSSEAU. The climate affects the shop men more, I think; but in addition to that, these men in the past, before the Y. M. C. A. clubhouse was opened, had no amusement, and the time hangs heavy on their hands outside of working hours, and a good many of them are not, of course, mechanics of high mental attainments, in the very nature of things, and they can not amuse themselves by reading.

CHARACTER AND COST OF BUILDINGS CONSTRUCTED.

Mr. MADDEN. I would like to have this general description of the character of construction to be inserted in the record. The reason I ask for that is this: First, to show the character of the construction, and principally to show that it is a cheap construction; and then I want to show, if I can, how much per cubic foot it costs to construct these buildings with this character of construction, and then I want to show that that is a high cost.

The general description of buildings referred to is as follows:

GENERAL DESCRIPTION OF TYPE BUILDINGS.

Footings.—Usually about 2-foot square and 1-foot thick, placed just below the surface of the ground if it is solid. On this is placed a 12-inch cube of concrete. This serves as a base for foundation posts and gets the latter off the ground.

Foundations.—The foundations are usually 6-inch by 6-inch or 8-inch by 8-inch posts set on top of the footings; the ends first being creosoted or covered with tar. Foundation posts and sills are braced with 4-inch by 4-inch knee braces.

All foundation posts and sills of the building should be creosoted or covered with tar—this to keep out the ants. The ends and splices especially should be well coated, as at these points the ants enter the timber.

Walls and ceilings.—The walls are covered on the outside with drop siding. On the inside the walls are made of matched and dressed ceiling, set vertically. The ceiling of rooms is of the same material as wall ceiling. Where practicable, the upper part of walls in kitchens, bathrooms, etc., are left open for ventilation and protected from the rain by galvanized iron hoods.

Roof.—Roofs are of galvanized iron in sheets 2 feet 6 inches by 8 feet laid on 2-inch by 8-inch nailing strips across the rafters spaced 2 feet 6 inches C. to C. It is important, in nailing the iron, to put on each nail a sheet lead washer, about three-quarter-inch square or round, in order to have a tight roof.

Windows and blinds.—Windows are of the casement type, opening in. Blinds open out. Where a window is not protected by a veranda, the blinds are omitted and fixed screens put in the opening—this to prevent servants or others from leaving the screens open.

Verandas.—Verandas should be plentiful and arranged so that it will not be necessary to use any screen doors or windows in the main part of the house which are in daily use.

Screening.—Verandas, or any openings in the walls not protected by verandas, should be screened with No. 18 brass or bronze wire. Screening should be placed on the outside for protection and in order that the woodwork may be cleaned from the inside. At the base of the screening from the lower rail of the balustrade should be a board around the entire veranda—this to keep the dirt from the screening.

There should be hinged sections of this board to allow the water to run out. All screen doors should open out; they should be small—2 feet 8 inches by 7 feet is a convenient size. There should not be more than 2 doors to the outside of the building, if possible.

The entrances should be protected by screened vestibules. This is the most efficient means of keeping out mosquitoes. As the vestibule projects from the building, there are usually draughts which keep the mosquitoes away from the entrances.

Chimneys.—Chimneys have been omitted from some of the buildings on account of cost, and also because some of the plans were prepared when cooking was done with oil stoves. The stovepipes are stuck through the walls or roof, and the opening protected with a metal thimble.

P. O. WRIGHT, Jr.
Architect, I. C. C.

Mr. ROUSSEAU. We all admit it is high.

Mr. MADDEN. Be kind enough, won't you, Mr. Rousseau, to tell us how much per cubic foot it costs to build one of these buildings, and whether the cubical contents of the building is figured to the outside verandas instead of the inside; whether it includes the screens.

Mr. ROUSSEAU. The cubical contents is taken from the inside of the first-floor joists, taking in the actual area included below the roof and to the outside of the screen.

Mr. MADDEN. That takes in everything?

Mr. ROUSSEAU. Yes, sir.

Mr. MADDEN. In the ordinary, what does it cost per cubic foot?

Mr. ROUSSEAU. The cheapest buildings that we construct are the clubhouses and churches, such as those down here by the hotel, where the cost runs a little over 10 cents a cubic foot. The average for the quarters runs from 12 to 14 cents a cubic foot.

Mr. BRICK. Is that the dwelling quarters?

Mr. ROUSSEAU. Yes, the houses; the quarters.

Mr. MADDEN. Now, in the case of the ordinary family building, say, a two-family or four-family structure, what is the proportion of space between the outer wall between the building proper and the outer side of the screen? How many cubic feet, or what proportion of space in the whole building would the porches amount to?

Mr. ROUSSEAU. Fully one-third.

Mr. MADDEN. It would average one-third?

Mr. ROUSSEAU. That is an estimate. I have never figured it out.

Mr. MADDEN. What would be the ordinary cost, per cubic foot, for such a building be, under ordinary circumstances?

Mr. ROUSSEAU. I have been accustomed to figuring the cost of buildings not of this character, because no buildings of exactly this character are built in the United States. But in dwellings on the Pacific coast, where material and wages are high, I think we have gone as high as from 10 to 12 cents. These were wooden buildings, but not of the same type. Of course, there is no doubt that this is a high cost.

Mr. MADDEN. Would not about 4 cents per cubic foot be a good price for that sort of construction, figuring in all the open space surrounded by the screens?

Mr. ROUSSEAU. I think that would be low, Mr. Madden.

Mr. MADDEN. What do you think would be a reasonable price?

Mr. ROUSSEAU. In the States?

Mr. MADDEN. Any place where things were done on a reasonable basis.

Mr. ROUSSEAU. I would like to submit, in answer to that, a sheet showing the unit prices used in figuring up the cost of these buildings.

Mr. MADDEN. What do you pay for lumber?

Mr. ROUSSEAU. Dressed lumber on cars, \$34 a thousand. For rough lumber, in place, \$60; dressed, in place, \$80.

Mr. MADDEN. That is put in place?

Mr. ROUSSEAU. Yes; that is finished [reads]:

PRICES TO BE USED IN ESTIMATING THE COST OF BUILDINGS.

Rough lumber (on cars)-----	per M--	\$30.00
Dressed lumber (in cars)-----	do-----	34.00
(Includes hardware, nails, etc.)		
Rough lumber (in place)-----	do-----	60.00
Dressed lumber (in place)-----	do-----	80.00
Scaffolding, 5 per cent of all lumber-----	do-----	60.00
Single door-----		10.00
Double door-----		13.00
Tollet of batten doors-----		5.00
Single sash or blind-----		8.00
Double sash or blind-----		10.00
Double sash and blinds-----		13.00
Screen door-----		6.00
Corrugated-iron roofing-----	per square--	8.00
Concrete-----	per cubic foot--	.50
Painting-----	per square--	2.00
Creosoting-----	do-----	1.00
Plumbing-----	per fixture--	50.00
Screening (3 feet wide)-----	per linear foot--	.20

Moldings, 1 cent per foot, for each 1-inch cross section, plus 1½ cents per foot for working.

Mr. MADDEN. You can buy one of those doors, for example, for \$1.50.

Mr. ROUSSEAU. No, sir; I do not think so—not such doors as we build. The master builder of the Commission was twenty-two years with the Illinois Central Railroad.

Mr. MADDEN. His name is Belding, is it not?

Mr. ROUSSEAU. Yes, sir. He worked his way up by his efficiency with the railroad, and he had a very large number of men under him with the railroad. He was brought down here, I think, with Mr.

Wallace. He came from Chicago. Of course the cost of the buildings here is a very large one and it has given us a great deal of concern. The plan under which we have been working has been to finish up, if we could, all the buildings immediately necessary and authorized, and then start on a basis where we would either reduce the cost in some manner in the construction, or attempt to do the work by contract for the labor, the Government itself undertaking to furnish the lumber. I agree with Mr. Madden that the price is high, but the Building Commissioner has been working under handicap in the past. He has been called on to furnish all the buildings at once, you might say, and speed has been the prime consideration. There has not been, possibly, as much attention paid to the cost as there should have been or would have been if there had been more time. The principal point was to get the work done. But we recognize that things have got to be put on the same basis here as in the States, and the work has got to be done at a reasonable cost as compared with the cost in the States.

The CHAIRMAN. Where do you get most of your lumber from?

Mr. ROUSSEAU. From the Gulf ports. We allow bids for the Puget Sound lumber as well as yellow pine, and whichever is cheaper the contract is awarded for it.

The CHAIRMAN. Have you charge of all the buildings?

Mr. ROUSSEAU. The construction merely. The request for construction of quarters comes from the Department of Labor, Quarters, and Subsistence, which maintains them and looks after them when completed.

The CHAIRMAN. I see you estimate for thirty 4-family houses, at \$6,067.05 each, \$182,111.50.

Mr. ROUSSEAU. I would like to say, in the first place, Mr. Chairman, that under the conditions at present it is practically impossible to tell what the requirements will be, in the way of quarters or buildings of any kind, a year in advance. I have prepared a short memorandum on that, a statement under item 5, on pages 13 and 14 [reads]:

DIVISION OF BUILDING CONSTRUCTION.

The duties of the Division of Building Construction relate to all that is covered by the construction and repair of buildings for the Commission.

Statement under item 5, page 13, printed estimates for the year 1908-9 for "New Equipment"—"Buildings."

All construction of this character is passed on and approved by the Chief Engineer and formally ratified by resolution of the Commission. Requests for the different classes of buildings originate with the division engineer, head of department, or employee under whose jurisdiction they come, or who requires their use. In the case of quarters for employees, the request originates with the head of Department of Labor, Quarters, and Subsistence.

When the estimates for new building construction were forwarded with the annual estimates, the present needs were supplied, both for quarters and for other buildings, and there was absolutely no data at hand showing what would be required during the year 1908-9, either as to character, location, or amount, except the judgment that there would certainly be some extension of buildings necessary to meet the new wants of the different divisions, which they would expect the Division of Building Construction to provide for when the need developed. In other words, it was absolutely impossible to predicate one year in advance the specific requirements for new buildings. The estimates were, therefore, based entirely on assumptions founded on past experience.

Statement with reference to item 5, page 15, printed estimates for the fiscal year 1908-9, for "Repairs to Buildings."

As was stated with regard to estimates for new building construction, in the case of repairs, no requests have been submitted to the Division of Building Construction by the different departments showing their needs for the next fiscal year. Such an estimate would be entirely impracticable to make with any degree of accuracy, a year in advance. The different divisions can not foresee their requirements that length of time in advance.

The largest item of repairs is to quarters and this is due to work necessary to continue the rehabilitation of old French quarters. On July 1, 1907, there was a total of 678 old French buildings to be repaired, and practically all of them quarters. The term "repairs" to new American buildings is somewhat misleading, as the greater part of the expenditure will be necessary for extensions and improvements due to the growth of the work.

That estimate was submitted when the head of the Department of Labor, Quarters, and Subsistence was away. We made it up as well as we could in his absence. He notified me to-day that in accordance with his plans for quarters he would like to make modifications in them, and I believe he has that plan. He says the total amount would vary very little from this amount, but he wanted more family quarters and fewer dormitories; a different condition.

QUARTERS.

The CHAIRMAN. How many applications have you on file for family quarters now?

Colonel GOETHALS. Three hundred and nine in excess of the number of married quarters authorized on September 1 last.

The CHAIRMAN. How many have you in excess of the quarters you have estimated for in the next fiscal year?

Colonel GOETHALS. If we build those and then stop, we will have no more. We will provide for all.

The CHAIRMAN. I know; but how many applications have you for quarters in excess of the buildings you ask Congress to appropriate for?

Colonel GOETHALS. None, as yet; but these are estimates that are not effective; for money that is not available until July next.

NEW OFFICE BUILDINGS.

Mr. ROUSSEAU. As showing the condition, Mr. Chairman, that we are up against, here are two requests that came in this morning, about which we had heard nothing previously. One is from the Manager of Labor, Quarters, and Subsistence, asking for the construction of an office building at Empire at an estimated cost of \$3,856; a two-story building, to be used on the first floor for furniture and for the office of the supervisor and supervisor's clerk, and the second floor for stationery of his department and his clerk and superintendent. He needs the quarters now occupied for bachelors, and there is no place to accommodate the superintendent.

NEW STOREHOUSES.

The other request is one that originated with the General Manager of the Panama Railroad Company, stating that the commissary storehouses at Culebra and Empire have become outgrown. He says the

sales are \$20,000 a month. He says he wants two commissary buildings which will have to be paid for by the Commission, one at Empire and one at Culebra. The estimated cost of these buildings, including all interior counters and shelves and fittings, and including storage facilities, is about \$10,000 a piece. Now, their sales are nearly \$20,000 a month.

The CHAIRMAN. Who passes on those?

Mr. ROUSSEAU. The Chief Engineer. They are referred to me, and I make report to the Chief Engineer. Then they are ratified by the Commission when the Chief Engineer reports on them.

COST OF FAMILY QUARTERS.

The CHAIRMAN. What is the cost of these quarters per cubic foot; these four-family houses at \$6,067.05?

Mr. ROUSSEAU. That would run at about 14 cents.

The CHAIRMAN. What would be the size of the buildings? How many stories?

Mr. ROUSSEAU. It is two stories. They are of the Type 14 house. They are to be 40 by 70 feet, I should say, roughly. I have the plans right here.

Mr. MADDEN. They would be about 20 feet?

Mr. ROUSSEAU. The new type which we are building, without the end verandas, will be 30 by 67 feet. We have tried to cheapen the cost as much as possible. We are now doing that by omitting the end verandas.

Mr. MADDEN. How many feet high?

Mr. ROUSSEAU. There is 12 feet clearance.

Mr. MADDEN. Then you would have about 30 feet?

Mr. ROUSSEAU. Yes.

The CHAIRMAN. That is a very high ceiling.

Mr. GILLETT. They make them all high ceilings in the Tropics.

Mr. MADDEN. It would cost \$8,400?

Mr. ROUSSEAU. No; \$6,000. That is based on the actual cost of a building that we passed.

DORMITORIES FOR BACHELORS.

The CHAIRMAN. You also estimate for sixteen 24-room dormitories, at \$9,720.15 each.

Mr. ROUSSEAU. Yes, sir; those buildings are 41½ feet by 86 feet—two-story buildings for bachelors. They will accommodate 48 bachelors, with a bathroom two-story annex 18 by 20.

The CHAIRMAN. That would allow how many cubic feet to each occupant?

Mr. ROUSSEAU. With two in a room, which has been the custom in the past, it allows from 75 to 80 feet per occupant.

COTTAGES.

The CHAIRMAN. You also estimate for 12 cottages, at \$2,073.43 each.

Mr. ROUSSEAU. Yes.

The CHAIRMAN. What is the size of those cottages?

Mr. ROUSSEAU. That is the Type 17 house. It is a one-family house with two bedrooms.

Mr. MADDEN. That would cost more than 14 cents a cubic foot, would it not, Mr. Rousseau?

Mr. ROUSSEAU. I think that runs up to 15 on the smaller house.

Mr. MADDEN. It is mere roof?

Mr. ROUSSEAU. Yes, sir.

The CHAIRMAN. None of these have foundations?

Mr. ROUSSEAU. Yes; the foundations are concrete blocks, and we put wooden posts on top of the concrete blocks.

Colonel GOETHALS. The Sanitary Department requires that no buildings shall be less than 3 feet from the ground.

The CHAIRMAN. How does the cost of these concrete blocks compare with the cost of a stone foundation?

Mr. ROUSSEAU. They are very much cheaper, if you have to get out this stone and quarry it and cut it.

The CHAIRMAN. None of these houses are plastered or have a system of heating?

Mr. ROUSSEAU. No, sir.

The CHAIRMAN. That comes from the outside.

Mr. MADDEN. And many of them have not chimneys.

Colonel GOETHALS. Some have chimneys for cooking quarters.

Mr. ROUSSEAU. We started building chimneys of galvanized iron, but they rusted out so quickly that we adopted sewer tile, which will last as long as the quarters will be needed.

The CHAIRMAN. The material is almost exclusively lumber?

Mr. ROUSSEAU. Yes; all but the corrugated-iron roof and the screening and the plumbing fixtures, which are quite an item. We use bronze netting for screens now.

Mr. GILLET. How much does it cost to screen those houses?

Mr. ROUSSEAU. About 56 cents a square yard, I think, to screen a building of this size over here [indicating a house outside]. It costs \$250 to screen it.

Mr. GILLET. You mean a family house?

Mr. ROUSSEAU. I mean dormitories.

Mr. GILLET. What would the screening of a single cottage cost?

Mr. ROUSSEAU. Not more than \$60; perhaps less than that.

The CHAIRMAN. What do you pay your carpenters per day?

Mr. ROUSSEAU. To a first-class carpenter 65 cents an hour. That is \$5.20 a day.

The CHAIRMAN. For eight hours?

Mr. ROUSSEAU. Yes.

The CHAIRMAN. In the construction of these houses do you have a foreman and carpenters working under him?

Mr. ROUSSEAU. The organization of the Building and Construction Department is to divide up the whole Isthmus, from Panama to Colon, into five districts. Each one is supervised by a district superintendent, who is responsible for all work in his district and receives orders from the central office here, from the master builder. In each one there is a foreman who looks after the jobs actually under way, and travels around from one to the other. If they are widely separated, he has to have a foreman for each locality.

Mr. GARDNER. What is the cost of everything in the case of a No. 17 cottage?

Colonel GOETHALS. That belongs to Mr. Jackson Smith, Labor and Quarters.

The CHAIRMAN. How many men would he have working on one of these cottages? You estimate it would cost \$2,073.43.

Colonel GOETHALS. About \$1,200 of that would be labor, and \$800 would be for material. There would possibly be a dozen men working on it; very seldom more than that at one time.

The CHAIRMAN. How long would it take a dozen men to build one of these \$2,000 cottages?

Mr. ROUSSEAU. Well, after the material is framed, two or three weeks would practically see it finished. The way the work is carried on is this: The first-class men, two or three or four on a job, are given as many negro helpers and second and third class men as laborers as they can use to advantage. There are usually four negroes to one white man. I do not think there are more than about 600 Americans.

The CHAIRMAN. About how many \$5.20 men would you have working at the same time in the construction of a \$2,000 cottage?

Mr. ROUSSEAU. I do not think there would ever be more than three or four first-class men. Most of the roofing is laid by the negroes, and they do all the painting as well.

HOUSES AT \$5,198.84.

The CHAIRMAN. You also estimate for 13 houses at \$5,198.84 each.

Mr. ROUSSEAU. That is an average. It is intended to cover quarters for assistants to the division engineers, and employees who get \$400 a month or more. It can not be told in advance, or foreseen in advance, just where those houses will be built, or what will be required, or the type, or the number. That was put in there as an average, based on the experience in the past.

The CHAIRMAN. What kind of a building have you here that has cost \$5,000; that is, a building that is in use now?

Mr. ROUSSEAU. Our Type 10 costs about that amount; from \$5,000 to \$6,000. It is a two-story house.

The CHAIRMAN. What are its dimensions?

Mr. ROUSSEAU. Its average dimensions are 35 by 40 feet.

The CHAIRMAN. How many rooms?

Mr. ROUSSEAU. It has three bedrooms. It is called a six-room house.

Mr. KEIFER. Is that for two families?

Mr. ROUSSEAU. Yes; for two families.

Mr. MADDEN. You call it a six-room house, and the price is what?

Mr. ROUSSEAU. Between \$5,000 and \$6,000.

The CHAIRMAN. How much more do buildings cost in the Zone here in consequence of the difference in the price of lumber between lumber here and in the United States, and because of the difference in the cost of labor employed in construction here and in the States?

Mr. ROUSSEAU. It averages certainly over 25 per cent, and I am inclined to think that the cost of the work is probably 50 per cent or more. I think also a portion of this difference could be attributed to sick leave with pay. The master builder informed me this morning that his pay roll was charged on an average of \$100 a day for men sick and in the hospitals that he had to carry. In addition

is the leave, of course. When a man goes away on leave it has to be charged up on the job he is working on.

Mr. MADDEN. If you are short of material for any reason, do you keep the men on the pay roll?

Mr. ROUSSEAU. In such cases the orders to the master builder are to furlough the men without pay. Of course if that is done to any extent, the men become dissatisfied and want to leave, and I am inclined to think that sometimes the higher-priced men are put on work that could be done by cheaper men. I do not know of any specific instances of this, but I think that that naturally follows.

The CHAIRMAN. In the planning for the construction of buildings do you take into consideration the fact that these buildings are only to be used temporarily, and that the cheaper grades of lumber and material could be used in consequence of that fact?

Mr. ROUSSEAU. Yes, sir; all the lumber we use is a merchantable grade, which is the lowest grade, and some that is sent down here is No. 2 merchantable, and we have deducted from the contractor. He sent it down as No. 1, and we graded it as No. 2, and deducted.

The CHAIRMAN. From my observation the lumber used in these buildings is lumber that would be used in the States now in the construction of buildings intended to be permanent.

Mr. ROUSSEAU. That is all merchantable lumber. None of the buildings except of the higher type are ceiled at all. The joists all show in the ceiling overhead, and all the superintendents in charge had it impressed upon them that now is the time when we have got to get down to a more economical working basis, now that the first rush is over.

LABORERS' QUARTERS.

The CHAIRMAN. You also estimate for 84 standard laborers' buildings at \$2,380.95 each. What are the dimensions of those buildings?

Mr. ROUSSEAU. Those are buildings just about such as we were in on Saturday, down the Rio Grande. They accommodate 60 laborers. I should say there are about 30 or 45 or 50 one-story buildings.

The CHAIRMAN. In what respect do they differ in their construction and material from the cottages and four-family dwellings?

Mr. ROUSSEAU. They are just shells. The roofs are of corrugated iron. Only one grade of lumber is used. The finish is not so fine, and the steps, of course, are of more simple construction, and the doors also, are of more simple construction. The necessity for putting that item in the estimates arose from the fact that that item was intended to cover certain exigencies that arise; the fact that the work shifts along from one point to another, and we must have sufficient accommodations for all the laborers on the road. As the work progresses we open up from time to time new camps.

The CHAIRMAN. Do you expect in the fiscal year 1909 that your force of laborers will increase so as to necessitate new laborers' buildings?

Mr. ROUSSEAU. No, sir; it is not intended that there shall be any increase. That is intended to try to cover the necessities that will develop from shifting men from one camp to another.

The CHAIRMAN. In cases of that kind have you ever entertained the idea of doing as railroad companies do, erecting railroad tents?

Colonel GOETHALS. We do that where the construction is temporary.

Mr. ROUSSEAU. The Panama Railroad men live in cars where the construction is temporary.

The CHAIRMAN. Where do you expect to have necessity for 84 standard laborers' buildings during the next fiscal year?

Colonel GOETHALS. The developments along the Chagres Division and La Boca and Gatun will necessitate more laborers' quarters there.

Mr. ROUSSEAU. I think the Manager of the Department of Labor, Quarters, and Subsistence would like to submit more items.

The CHAIRMAN. So far as our consideration is concerned those modifications would not change the total.

Mr. ROUSSEAU. No. The effort is to make provision in the estimates for any contingencies that would come up. We are very much in the dark as to just what we will need. Except by judging from past experience, we can not tell.

SHOPS AT GORGONA AND EMPIRE.

The CHAIRMAN. You have an estimate here for \$87,000 for shops. What character of shops will be required in the year 1909 in addition to the shops you now have?

Mr. ROUSSEAU. So far as the main shops are concerned at Gorgona, they are practically completed, though there is a large car repair shop desired on the flat that is being filled in at Gorgona. At present the car repair shop is between the main shop and the Chagres River, and they are very much handicapped. That is the only large shop required at Gorgona. At Empire the shops are not yet completed, and I doubt whether we will get to some of the smaller buildings at the Empire shops. We have not made any detailed estimate because we could not foresee just what we would want.

The CHAIRMAN. The increase of the capacity of the shops at Gorgona and Empire will be made before July 1, 1909, will it not?

Mr. ROUSSEAU. I do not know about Gorgona, because that fill will not be completed for some months, and we want to let the ground rest before putting in new buildings on that new ground.

The CHAIRMAN. The next item is hotels and mess houses, \$50,000.

Colonel GOETHALS. That is under Labor and Quarters.

Mr. ROUSSEAU. Labor and quarters have an item on that, and as to the next, storehouses, the Chief of Materials and Supplies has that.

DIVISION OFFICE BUILDINGS AND MISCELLANEOUS.

The CHAIRMAN. The next is division office buildings, \$35,000, and after that, miscellaneous buildings, \$150,000.

Mr. ROUSSEAU. I intended to bring under that head these two letters that came to me to-day, requesting buildings in one day to the extent of \$25,000. We had hoped that we had already covered the requirements of all the departments in the way of buildings.

The CHAIRMAN. How do you arrive at the estimate of \$115,000 for the purchase of furniture for 1909?

Mr. ROUSSEAU. That is Mr. Smith's, under Labor and Quarters.

The CHAIRMAN. Are there any other estimates in your department that we have not gone over?

REPAIRS TO BUILDINGS.

Mr. ROUSSEAU. Yes, sir; the repairs to buildings.

The CHAIRMAN. Have you a list of the repairs that are necessary?

Mr. ROUSSEAU. I have the data here; yes, sir. The same remark applies to the repairs that applies to new construction. It is very hard to anticipate what is going to come up. The item for repairs to quarters applies very largely to the old French quarters.

The CHAIRMAN. So that you have just guessed at the amount you would need?

Mr. ROUSSEAU. Yes; so that we would have funds on hand for any emergency that would come up.

The CHAIRMAN. If you had them on hand you might be inclined to make the emergencies so that the money would be expended?

Mr. ROUSSEAU. No, sir. That is what I am responsible for, to look out and see that they are needed.

The CHAIRMAN. How much is the estimate for repairs?

Mr. ROUSSEAU. It is about \$350,000. That includes improvements and extensions. The word "repairs" does not properly describe it. For instance, the total amount that has been expended on repairs to quarters for laborers from May, 1904, to June 30, 1907, is \$185,000, and of that \$141,000 was expended on repairing 381 old French buildings and only \$43,000, or less than a quarter of that, was spent on American buildings.

Mr. GARDNER. Why the necessity of repairs so early on new buildings to that extent?

Mr. ROUSSEAU. As I say, "repairs" is a misnomer. It is usually an extension or improvement of some kind or other.

The CHAIRMAN. Have you a detailed statement of the repairs and extensions you contemplate making out of this appropriation?

Mr. ROUSSEAU. No, sir. It is impossible to anticipate in detail the necessities. The Building and Construction Division has no requests, and it has been impossible to do anything but prepare the estimates in the light of past experience.

The CHAIRMAN. How much is being expended this year under that head?

Mr. ROUSSEAU. I have not that data with me. I can get that for you.

The CHAIRMAN. Have you any data in your office that would give you any idea of the amount that you would have to expend in the next six months for repairs, in the way of applications for repairs, reports from inspectors or anybody, as to the condition of buildings?

Mr. ROUSSEAU. There is nothing for the future requirements that ever comes to us until a letter comes from the head of a department or division requesting that repairs be made; but for the last three months we have kept a record of all repairs and costs and everything in relation thereto.

The CHAIRMAN. When an application of that kind comes in, what is done with it?

Mr. ROUSSEAU. The quarters are in charge of a local supervisor of Labor, Quarters, and Subsistence. He writes a letter to the head of the Department, Mr. Jackson Smith, who investigates the matter, and if he thinks it necessary he forwards the request to the Chief Engineer, that the repairs be authorized. That is referred to me, and if found

in accordance with the general policy and found to be necessary, it is approved and forwarded to the Chief Engineer.

The CHAIRMAN. Do you go yourself and see that the repairs are necessary?

Mr. ROUSSEAU. No, sir.

The CHAIRMAN. Have you anybody to go for you?

Mr. ROUSSEAU. It is largely a matter of policy. The Department of Labor, Quarters, and Subsistence is supposed to be responsible for the necessity of repairs.

The CHAIRMAN. Is this estimate Jackson Smith's estimate—his estimate of three hundred and some odd thousand dollars?

Mr. ROUSSEAU. It is, so far as relates to quarters and hotels.

Mr. MADDEN. Is there any rule by which you figure a certain percentage of the cost annually for repairs?

Mr. ROUSSEAU. We have not introduced that as yet, because we have not got all the buildings that we anticipate we shall require.

The CHAIRMAN. Outside the old French buildings, these buildings are scarcely 2 years old?

Mr. ROUSSEAU. That is correct. They require very little for repairs proper.

The CHAIRMAN. What is the chief item in the repair of a building? What part of a building deteriorates fastest—the roof?

PAINTING.

Mr. ROUSSEAU. Heretofore the corrugated-iron roof required painting every year. We are using a new paint now that we hope will obviate that—a block-culture paint that we make ourselves.

Mr. MADDEN. If you do not paint them every year they will not last more than two years?

Mr. ROUSSEAU. No.

The CHAIRMAN. What does that painting cost, per building?

Mr. ROUSSEAU. It costs 30 cents a gallon, the red paint does. It costs about 40 cents a square foot to put on.

The CHAIRMAN. What would the roof of a four-family dwelling cost to put on? What would the painting of such a dwelling cost?

Mr. ROUSSEAU. The painting of such a roof would cost \$48.

The CHAIRMAN. What do you pay the painters?

Mr. ROUSSEAU. Thirty-two cents an hour silver.

The CHAIRMAN. Most of the cost, then, is material?

Mr. ROUSSEAU. I think it is about half and half.

Mr. MADDEN. In order to make the record show what a square is, so that Members of Congress who are not here will understand, please state what a square is.

Mr. ROUSSEAU. One hundred feet square.

Mr. GILLETT. Suppose there should be enacted a provision that before the 1st day of January and next July every man who occupied a house would be required to pay house rent; would not that reduce the number of applications for houses?

Mr. ROUSSEAU. It probably would.

Mr. GILLETT. If that were done would not that decrease the applications for family quarters?

Mr. ROUSSEAU. They perhaps would not come down here.

Mr. BURLESON. It would probably vacate many that are now occupied. If a man occupied a house costing \$5,600, paying \$560 annual rent, he would probably leave it and send his family home.

The CHAIRMAN. Do you find as a rule that a married employee is better satisfied and contented than a single?

Mr. ROUSSEAU. Yes, and more steady.

Following are documents filed by Mr. Rousseau:

ISTHMIAN CANAL COMMISSION—DEPARTMENT OF CONSTRUCTION AND
ENGINEERING.

[Submitted by Commissioner H. H. Rousseau at hearing at Culebra November 11, 1907.]

DIVISION OF BUILDING CONSTRUCTION.

Expenditures from May 1, 1904, to June 30, 1907.

General account No. 1:

Subaccount No. 111, office of master builder-----	\$323,054.26
(Includes salaries and allowances of the master builder and assistants, drafting and clerical forces, their expenses, also furniture, etc.)	
Subaccount No. 41, military protection-----	30,560.72
(Covers expense of repairing and construction of buildings at Empire and Haut Obispo that were and are now being used by marine encampment.)	
Subaccount No. 112, construction of general offices-----	137,321.69
(Covers labor and material used in constructing general offices for the Construction and Engineering Department at Culebra, for the auditing and disbursing office at Empire, and court-house at Empire.)	
Subaccount No. 113, construction of quarters, gold-----	2,391,864.81
(Covers labor and material used in construction of quarters for gold employees. The following buildings were completed: 31 houses, type 1; 4 houses, type 3; 5 houses, type 4; 2 houses, type 6; 28 houses, type 7; 4 houses, type 8; 1 house, type 10; 7 houses, type 13; 23 houses, type 14; 64 houses, type 15; 32 houses, type 17; 5 houses, type F; 2 houses, type E2; 20 portable houses; 20 married quarters, Culebra; 1 Chief Engineer's residence; 1 assistant chief engineer's office; 1 residence, chief, material and supplies; 58 houses, type 5; 11 houses, type 16; 13 houses, type 18; 2 houses, type 19; 1 bachelor officers' quarters, Ancon; total, 336.)	
Subaccount No. 114, construction of quarters, silver-----	785,504.03
(Covers labor and material used in constructing quarters for silver employees. The following buildings were completed: 179 laborers' barracks; 24 houses, type A; 79 cook sheds; 29 bath houses; 75 closets; 42 standard laborers' kitchens; total, 428.)	
Subaccount No. 115, construction of hospital buildings-----	572,794.85
(Covers labor and material used in erecting buildings for hospital purposes. The following buildings were completed: 2 ward maid quarters, 1 detention hospital kitchen annex, 1 annex to hospital at Haut Obispo, 1 hospital on Coral Reef, 2 insane hospitals, 2 tubercular wards, 1 nurses' quarters, 1 ambulance shed extension, 1 16-bed hospital, 1 nurses' home, 2 orderlies' quarters, 8 leper buildings, 2 detention hospitals, 1 leper hospital, 1 temporary body storage, 7 leper houses, 1 operating room, 1 morgue, 1 emergency hospital, 1 hospital annex, 2 detention barracks, 1 operating room, 1 colored ward, 1 ambulance shed, 2 gate houses, 15 quarters, 1 boathouse, 1 sick camp, 1 sanitarium storehouse, 1 24-bed hospital; total, 64.)	
Subaccount No. 116, construction of schoolhouses-----	14,935.14
(Covers labor and material used in erecting new schoolhouses, 1 at Culebra being completed during the year and 3 others in course of construction.)	

General account No. 1—Continued.

Subaccount No. 117, construction of shops.....	\$279, 873. 15
(Covers labor and material used in constructing shops. The following buildings were completed: 1 pattern storehouse, 1 addition to car-repair shop, 1 planing mill addition, 1 air-compressor plant, 1 machine shop, 2 engine houses, 1 bar-iron rack, 1 instrument-repair shop, 1 carpenter shop, 1 car-repair shed, 1 machine-shop extension, 1 wooden machine-shop extension, 1 concrete-block plant, 1 water-service workshop, 2 sawmills, 1 planing mill, 1 oil house; total, 19.)	
Subaccount No. 118, construction of hotels for.....	488, 304. 12
(American employees and European laborers; covers labor and material used in constructing hotels and mess halls. The following buildings were completed: Hotels—1 at Tivoli Hill, 1 at Corozal, 1 at Pedro Miguel, 1 at Culebra, 1 at Culebra Annex, 1 at Paraiso, 1 at Empire, 1 at Las Cascadas, 1 at Gorgona, 1 at Gatun, 1 at Cristobal; total, 11. Gallego mess halls and kitchens—1 at La Boca, 1 at Ancon (leper camp), 1 at Corozal, 1 at Camp Diablo, 1 at Cucaracha, 1 at Gold Hill, 1 at Juan Grande, 1 at Mamel, 1 at Gamboa, 1 at Gatun, 1 at Tabernilla; total, 11.)	
Subaccount No. 119, construction of storehouses.....	218, 382. 50
(Commissaries, corrals, etc. Covers labor and material used in constructing storehouses, commissaries, corrals, etc. The following buildings were completed: 27 storehouses, 5 commissaries, 3 corrals; total, 35.)	
Subaccount No. 120, construction of division buildings.....	78, 315. 12
(Covers labor and material used in constructing coal chutes, division office buildings, etc. The principal buildings completed are as follows: 1 building, superintendent's office, Pedro Miguel; 1 superintendent's office, Culebra; 1 division engineer's office, Gatun; 1 yardmaster's office, Lirio; 1 building, superintendent's office, Ancon; 1 division engineer's office, La Boca; 1 coal chute, Pedro Miguel; 1 coal chute, Las Cascades; total, 8.)	
Subaccount No. 121, repairs to general offices.....	32, 626. 53
(Includes labor and material used in repairing offices at Panama, Ancon, Culebra, Empire, and Cristobal.)	
Subaccount No. 122, repairs to quarters, gold.....	487, 370. 75
(Covers labor and material used in repairs to 707 French buildings and 538 American buildings occupied by gold employees.)	
Subaccount No. 123, repairs to quarters, silver.....	185, 430. 60
(Covers labor and material used in repairs to 380 French buildings and 312 American buildings occupied by silver employees.)	
Subaccount No. 124, repairs to hospital buildings.....	124, 082. 10
(Covers labor and material used in repairing 106 French buildings and 44 American buildings used for hospital purposes.)	
Subaccount No. 125, repairs to schools.....	7, 590. 60
(Covers labor and material used in repairs to school-houses.)	
Subaccount No. 126, repairs to shops.....	12, 042. 18
(Covers labor and material used in repairs to shop buildings at various points.)	
Subaccount No. 127, repairs to hotels.....	80, 058. 40
(Covers labor and material used in repairs to hotels for American employees and mess halls for European laborers.)	
Subaccount No. 128, repairs to division buildings.....	56, 304. 29
(Covers labor and material expended for repairs to division buildings, the principal expense being for remodeling house No. 1 at Cristobal.)	

General account No. 1—Continued.

Subaccount No. 130, construction of miscellaneous----- \$350,000. 72

(Buildings, government and sanitary departments. Covers labor and material used in constructing miscellaneous buildings, as follows: Ancon administration building, under way; church, 1 at Ancon. Jails—1 at Las Sabanas, 1 at Ancon, 1 at Culebra, 1 at Empire, 1 at Bas Obispo, 1 at Gorgona, 1 at Tabernilla, 1 at Mount Hope, 1 at Cristobal, 1 at Matachin, 1 at Gatun. Post-offices—1 at Pedro Miguel, 1 at Empire, 1 at Gatun, 1 at Las Cascadas. Fire department buildings—1 at La Boca, 1 at Ancon, 1 at Pedro Miguel, 1 at Paraiso, 1 at Culebra, 1 at Empire, 1 at Gorgona, 1 at Cristobal. Office building—1 sanitary department, Ancon.)

Subaccount No. 131, repairs to miscellaneous buildings----- 32,605. 20

(Government and Sanitary Department. Covers labor and material used in repairing buildings of the character named under account No. 130.)

Subaccount No. 132, construction of club houses and lodge halls----- 154,285. 30

(Covers labor and material used in constructing club houses and lodge and assembly halls. The following buildings were completed: Club houses—1 at Culebra, 1 at Empire, 1 at Gorgona, 1 at Cristobal. Lodge and assembly halls—1 at Culebra, 1 at Gorgona, 1 at Cristobal.)

Subaccount No. 221, local transportation----- 2,930. 16

(This covers labor and material used in repairing corals.)

Subaccount No. 236, Culebra-Empire electric light plant----- 8,137. 22

(Covers labor and material used in connection with the construction of the Culebra-Empire electric light plant.)

General account No. 6:

Subaccount No. 7, manufacturing account----- 480,950. 23

(To this account is charged labor and material used in the manufacture of doors, window frames, factory work, concrete blocks, and miscellaneous items used in the construction of buildings. These shops are located as follows: Ancon, wood and machine shop, and concrete block plant; Culebra, carpenter shop; Lirio, planing mill; Gorgona, carpenter shop; Cristobal, carpenter shop.)

General account No. 7:

Subaccount No. 7, repairs to storehouses----- 122,330. 16

(To this account is charged labor and material used in repairing storehouses belonging to the various departments. The principal expense incurred was for rebuilding the large material and supplies department storehouse at Mount Hope, size 150 by 490, which was nearly destroyed by fire in the early part of 1907.)

Other departments----- 50,062. 20

(This covers work done at various points on requests from the different departments.)

DIVISION OF BUILDING CONSTRUCTION.

Statement of charges from May 1, 1904, to June 30, 1907.

General account No. 1:

Subaccount No. 111, Office of master builder----- \$323,054. 26

41. Military protection----- 30,560. 72

112. Construction of general offices----- 137,321. 69

113. Construction of quarters, gold----- 2,391,864. 81

114. Construction of quarters, silver----- 785,504. 03

115. Construction of hospital buildings----- 572,794. 85

116. Construction of schoolhouses----- 14,935. 14

117. Construction of shops----- 279,873. 15

General account No. 1—Continued.

Subaccount No. 118. Construction of hotels.....	\$488,304.12
119. Construction of storehouses.....	218,382.50
120. Construction of division buildings.....	78,315.12
121. Repairs ^a to general offices.....	32,626.53
122. Repairs ^a to quarters, gold:	
707 French buildings ..	\$389,896.60
538 American buildings ..	97,474.15
	487,370.75
123. Repairs ^a to quarters, silver:	
380 French buildings ..	141,620.48
312 American buildings ..	43,810.12
	185,430.60
124. Repairs ^a to hospital buildings:	
106 French buildings ..	104,850.60
44 American buildings ..	19,231.50
	124,082.10
125. Repairs ^a to schools.....	7,590.60
126. Repairs ^a to shops.....	12,042.18
127. Repairs ^a to hotels.....	80,058.40
128. Repairs ^a to division buildings.....	56,304.29
130. Construction of miscellaneous buildings, government and sanitary department.....	350,090.72
131. Repairs to miscellaneous buildings, government and sanitary department.....	32,605.20
132. Construction of club houses.....	154,285.30
221. Local transportation.....	2,930.16
236. Culebra-Empire electric-light plant.....	8,137.22
General account No. 6, subaccount No. 7: Manufacturing account.....	480,950.23
General account No. 7, subaccount No. 7:	
Repairs ^a to storehouses.....	122,330.16
Other departments.....	50,062.20
	7,507,807.03

^a Repairs includes improvements and alterations to new buildings, as well as repairs to old French buildings.

Type of houses, July 24, 1907.

 [Revised¹ list.]

Type.	Occupancy.	Estimated cost from bill of material.
1	2-story, 2-family, married quarters.....	85,763
2	2-story, 8-room, bachelor quarters.....	6,535
3	2-story, 1-family, married quarters.....	8,128
4	2-story, 2-family, married quarters.....	5,927
5	2-story, 8-room, bachelor quarters.....	6,133
6	1-story, 1-family, married quarters.....	5,308
7	2-story, 2-family, married quarters.....	4,140
8	2-story, 1-family, married quarters.....	6,346
8a	2-story, 1-family, married quarters.....	6,800
9	2-story, 2-family, married quarters.....	4,829
10	2-story, 1-family, married quarters.....	4,066
11	2-story, 1-family, married quarters.....	3,190
12	1-story, 1-family, married quarters.....	4,648
13	2-story, 1-family, married quarters.....	4,804
14	2-story, 4-family, married quarters.....	7,218
15	1-story, 1-family, married quarters.....	2,600
16	1-story, 4-room, bachelor quarters.....	3,630
17	1-story, 1-family, married quarters.....	2,743
18	2-story, 24-room, bachelor quarters.....	11,285
19	2-story, 2-family, married quarters.....	7,198
21	2-story, 1-family, married quarters.....	4,908
E2	2-story, 1-family, married quarters.....	4,062
C	1-story, 1-family, married quarters.....	3,978

¹Denotes type houses revised.

Type of houses, June, 1907.

Type.	Occupancy.	Estimated cost from bill of material.
1	2-story, 2-family, married quarters.....	\$5,080
2	2-story, 8-room, bachelor quarters.....	5,515
3	2-story, 1-family, married quarters.....	6,970
4	2-story, 2-family, married quarters.....	5,400
a 5	2-story, 8-room, bachelor quarters.....	5,805
6	1-story, 1-family, married quarters.....	4,770
a 7	2-story, 2-family, married quarters.....	3,522
a 8	2-story, 1-family, married quarters.....	5,566
a 8	2-story, 1-family, married quarters.....	5,890
9	2-story, 2-family, married quarters.....	3,960
a 10	2-story, 1-family, married quarters.....	3,720
11	2-story, 1-family, married quarters.....	2,740
12	1-story, 1-family, married quarters.....	4,115
13	2-story, 1-family, married quarters.....	4,170
a 14	2-story, 4-family, married quarters.....	6,067
15	1-story, 1-family, married quarters.....	2,095
16	1-story, 4-room, bachelor quarters.....	3,250
a 17	1-story, 1-family, married quarters.....	2,430
a 18	2-story, 24-room, bachelor quarters.....	9,720
a 19	2-story, 2-family, married quarters.....	6,297
21	2-story, 1-family, married quarters.....	4,345
E 2	2-story, 1-family, married quarters.....	3,410
C	1-story, 1-family, married quarters.....	3,315

a Denotes type houses revised.

QUANTITIES TO BE USED IN PREPARING BILLS OF MATERIAL, MARCH 1, 1906.

Framing.—Allow extra pieces, approximately 10 per cent.

Finish.—Allow extra pieces, approximately 10 per cent.

Flooring.—Allow for waste and matching, 35 per cent for 1 inch by 3 inches or 1 inch by 4 inches, 25 per cent for 1 inch by 6 inches.

Siding.—Include the openings and add 20 per cent.

Ceiling.—Include the openings and add 20 per cent.

Tile roofings.—Figure 135 tiles per square; 1 ridge tile every 20 inches, 1 hip tile every 12 inches; allow 20 per cent for waste.

Corrugated roofing.—Allow extra squares, approximately 3 per cent. Figure 11 sheets 2 feet by 6 feet per square; 6½ sheets 2 feet 6 inches by 8 feet per square.

Brick work.—Figure 22 bricks per cubic foot. Allow 10 per cent for waste.

Concrete.—1+3+6 concrete: Allow 1.15 barrels cement per cubic yard, 25 cubic feet stone, 12.5 cubic feet sand.

Cement mortar.—1+2 cement mortar finish: Allow 3½ barrels cement per cubic yard, 24½ cubic feet sand (of finish).

RECORD OF EQUIPMENT ON HAND NOVEMBER 11, 1907.

Equipment of Panama Railroad.

First-class old passenger coaches.....	8
First-class new passenger coaches.....	9
Second-class old cars, passenger coaches.....	11
Second-class new cars, passenger coaches.....	10
Private coaches.....	3
Pay car.....	1
Funeral car.....	1
Baggage cars, old.....	4
Hospital cars.....	2
Local express cars.....	21
Baggage and mail combination cars.....	4
Cabooses, old.....	10
Specie car, old.....	1
Specie car, new.....	1
Tank cars.....	5
Stock cars, old.....	6
24,000-pound capacity box cars.....	475

48,000-pound capacity box cars.....	54
24,000-pound coal cars.....	118
24,000-pound capacity flat cars.....	35
Converted labor cars.....	22
Small derrick car.....	1
Tool car.....	1
Construction cars.....	27
80,000-pound capacity new stock cars.....	10
80,000-pound capacity refrigerator cars.....	10
Cabooses, new.....	12
80,000-pound box cars.....	481
Rodger ballast cars.....	100
Double plow cars.....	2
80,000-pound coal cars.....	15
Bucyrus pile drivers (1 in Isthmian Canal Commission service).....	12
Bay City pile drivers.....	2
10-ton cranes (Panama Railroad No. 2) and No. 1 (1 in Isthmian Canal Commission service).....	2
75-ton cranes (Panama Railroad No. 3) and No. 4 (in Isthmian Canal Commission service).....	2
4-wheel French switch locomotives.....	5
Hinkley locomotives.....	8
Rodgers locomotives.....	8
Baldwin switch locomotives.....	5
Cooke switch locomotives.....	7
8-wheel Baldwin road locomotive.....	1
100-class Schenectady locomotives.....	24
Cooke road locomotives (all in Isthmian Canal Commission service).....	5

Equipment of Isthmian Canal Commission, November 11, 1907.

Steel flat cars.....	500
(Four hundred and eighty-seven in service; some of these cars being used in connection with track shifters, etc.)	
Steel dump cars, 12 yards capacity.....	299
Ingoldsby dump cars.....	12
Goodwin dump cars.....	12
King Lawson dump car.....	1
Wooden flat cars (80,000 pounds).....	1,485
Western dump cars 18 ft.....	300
French dump cars (6 meters).....	251
All received: Four-yard dump cars, 36-inch gauge (on order for Panama Railroad relocation).....	35
Track laying cars (on order, requisition Canal Zone, October 3, 1907).....	6
12-yard Oliver steel cars (on order, contract September 13, 1907).....	500
80,000-pound wooden flat cars (on order; contract, August 14, 1907; delivery, November 14, 1907).....	300
100-ton Bucyrus crane.....	1
Miscellaneous French cranes.....	13
20-ton American Hoist Company (1 in service of Panama Railroad).....	2
12-ton Industrial Works cranes.....	2
15-ton Browning cranes.....	4
20-ton Browning cranes (2 in service of Panama Railroad).....	4
25-ton Bay City wrecking cranes (on order).....	4
10-ton Bay City locomotive coaling crane (on order).....	2
20-ton Brown Hoisting Machinery Company (on order).....	8
Wood flat cars.....	28
Labor cars.....	47
Work cars.....	38
Camp cars.....	36
Decauville dump cars.....	288
Decauville passenger car.....	1
French locomotives, 6-wheel switch (9 assigned to Panama Railroad).....	123
201-class Cooke (19 by 24) Mogul locomotives.....	100
301-class Baldwin (19 by 24) Mogul locomotives (3 assigned to Panama Railroad).....	40
601-class Brooks (20 by 26) Mogul locomotives.....	20

French Decauville locomotives.....	6
10 by 16, 36 inch gauge Davenport locomotives (on order, for Panama Railroad, relocation).....	12
Pile drivers (4 assigned to Panama Railroad; 5 under erection).....	17
38-ton Marion steam shovel (assigned to Panama Railroad).....	1
45-ton Bucyrus steam shovel (7 under erection).....	10
70-ton Bucyrus steam shovel (2 assigned to Panama Railroad).....	28
95-ton Bucyrus steam shovel.....	32
70-ton Marion steam shovel (on order, contract September 9, 1907; delivery to start November 8; complete January 27, 1908, New York).....	7
70-ton Bucyrus steam shovel (on order, contract September 9, 1907; delivery to start November 13; complete January 12, 1908, New York).....	7
Model No. 91 Marion steam shovel (on order).....	16
Jordan spreaders.....	4
Mann-McCann spreaders (10 under erection).....	19
Track shifters.....	9
25-ton unloaders (1 assigned to Panama Railroad).....	4
60-ton unloaders.....	22

STATEMENT OF MR. W. G. TUBBY, CHIEF OF DIVISION OF MATERIAL AND SUPPLIES, DEPARTMENT OF CONSTRUCTION AND ENGINEERING.

The CHAIRMAN. Mr. Tubby, you are Chief of the Division of Supplies?

Mr. TUBBY. Yes, sir.

NATURE AND SCOPE OF SUPPLIES.

The CHAIRMAN. Will you state to the committee just what property you have under your control and what is the nature of the work of the Division of Supplies.

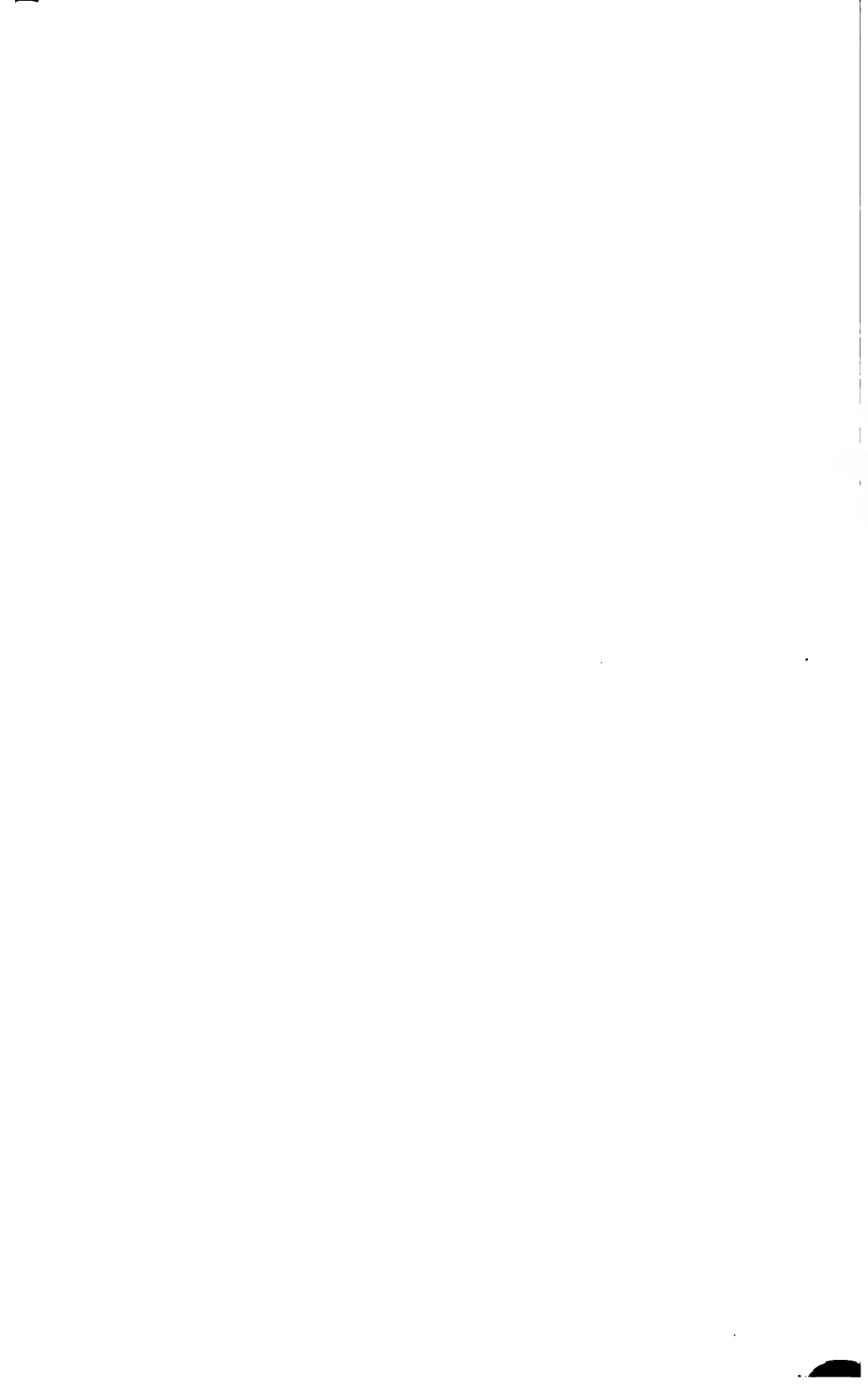
Mr. TUBBY. All supplies used by the Commission, of all kinds, are ordered and received by me. All invoices are passed for payment on my certification. The supplies which I have in stock are carried at Cristobal, Colon, Mount Hope, Gorgona, Bas Obispo, Empire, Culebra, Paraiso, Ancon, and La Boca. We have two lumber yards, one located at Culebra and one at La Boca. The property consists of all kinds of materials and supplies for use and repair of locomotives, steam shovels, and drills, furniture for Labor and Quarters, and track material for maintenance of way; also all animal transportation on the Isthmus, consisting of 460 mules and 175 horses. This transportation is used by all departments—Municipal Engineering and Building Construction principally; also the police force.

The CHAIRMAN. You have no control over the question of whether a requisition that is made on you should or should not be granted, have you? You do not pass upon the necessity of furnishing supplies, do you?

Mr. TUBBY. The kind of material that we have is what we call standard stock—nails, oils for locomotives, steam shovels, and a great variety of standard goods; they go to all departments. They are what we call our standard stock.

METHOD OF MAKING AND FILLING REQUISITIONS.

The CHAIRMAN. Now, as to requisitions made on you for any portion of your standard stock, do you determine whether or not the requisition should be filled, or not?



Mr. TUBBY. No. The requisition would be approved by the head of the division, and on his approval I would fill it.

The CHAIRMAN. Have you also in your department the work of invoicing all the material and supplies and equipment? Is there an invoice of the property owned by the Government here on the Zone everywhere?

Mr. TUBBY. All property drawn from my stock is invoiced to the other departments and charged up.

The CHAIRMAN. Has that been so ever since you have been employed by the Commission?

Mr. TUBBY. Ever since I have been down.

Mr. MADDEN. When a requisition is made on you and filled, you charge the material that you give out to fill the requisition against the inventory, do you?

Mr. TUBBY. Against the department or the work.

Mr. MADDEN. You charge it off on the inventory, so that the inventory will show the amount of that particular stock on hand after the order is filled?

Mr. TUBBY. Yes, sir.

Mr. MADDEN. So that if anybody went in your place to-day, or tomorrow, or the next day, they would see the continuing draft against the particular line of supplies you had in the warehouse?

Mr. TUBBY. Yes.

Mr. MADDEN. They would be able to tell, without your showing them, how much stuff of a particular kind you had on hand from the records you made?

Mr. TUBBY. Yes.

Mr. MADDEN. These records are not so complicated as to require a bookkeeper to decipher them?

Mr. TUBBY. No, sir. They are stock sheets, showing the amount of every item and material we have.

The CHAIRMAN. Have you ever taken an actual inventory of the property outside of your invoiced inventory?

Mr. TUBBY. Not outside of my own stock.

Mr. TAYLOR. After it leaves you, you have no record?

Mr. TUBBY. No, sir.

Mr. TAYLOR. Who has charge of it?

Colonel GOETHALS. The division engineer or the party to whom it is invoiced; and he files an inventory, which was formerly done through the Examiner of Accounts.

The CHAIRMAN. Can you tell how much property there is in the hands of the engineering department?

Mr. TUBBY. No, sir; I can not.

Colonel GOETHALS. The examiner of accounts could furnish that information.

PERSONNEL OF DIVISION OF MATERIAL AND SUPPLIES.

The CHAIRMAN. How many people have you in your employ, Mr. Tubby?

Mr. TUBBY. About 1,200.

The CHAIRMAN. How do the salaries which they receive compare with the salaries paid in the States for like services, or similar services?

Mr. TUBBY. From 60 to 100 per cent higher.

The CHAIRMAN. Does that percentage include the benefits they receive, or is it a percentage in actual compensation?

Mr. TUBBY. The percentage in actual compensation.

VALUE OF PRIVILEGES AND ADVANTAGES.

The CHAIRMAN. What do you estimate is the money value of the privileges and benefits which the Government affords the men in addition to their compensation?

Mr. TUBBY. Well, I should say about \$4 a week.

The CHAIRMAN. Single or married men?

Mr. TUBBY. Single men.

The CHAIRMAN. What would it be in the case of married men?

Mr. TUBBY. About \$6 a week.

Mr. GILLET. Only \$2 more for a house than for one room?

Mr. MADDEN. For instance, what do you estimate the rent is worth?

Mr. TUBBY. About \$10 a month for a single man, and \$15 for married quarters.

Mr. MADDEN. That is \$3.20 a week for the married man?

Mr. TUBBY. Yes.

Mr. MADDEN. How much is his coal worth?

Mr. TUBBY. Well, about \$5 a ton.

Mr. MADDEN. How much coal would he use in a month?

Mr. TUBBY. He would not use very many tons.

Mr. BURLESON. He would use it for cooking?

Mr. TUBBY. Well, the ordinary family—

Mr. MADDEN. Is it worth a dollar a month?

Mr. TUBBY. About three tons per year.

Mr. MADDEN. That is \$18 a year, \$1.50 a month?

Mr. TUBBY. A great many families have oil stoves.

Mr. MADDEN. Then there is the light. How much is that per month?

Mr. TUBBY. It is worth more here than in the North. In the North they would not use much light in the summer months.

Mr. MADDEN. Would it be worth \$3 a month?

Mr. TUBBY. No; \$2 a month.

Mr. MADDEN. That is \$18.50 a month. Then how much is the water worth?

Mr. TUBBY. Well, the water would be worth, say, \$1 a month.

Mr. MADDEN. That is \$19.50. Then how much is the doctor worth?

Mr. TUBBY. Well, to a healthy man a doctor is not worth anything.

Mr. BURLESON. What is it worth to the average man on this zone to have the hospital privilege?

Mr. TUBBY. You have got me.

The CHAIRMAN. Have you not got the value of the lights pretty high?

Mr. MADDEN. No; that is very cheap.

Mr. TUBBY. No; I do not think that is too high.

The CHAIRMAN. And water?

Mr. KEIFER. No; that is not high.

The CHAIRMAN. That is more than I pay at Winona.

Have you had any trouble, Mr. Tubby, in getting men to fill the positions under you, the requisite number of employees?

Mr. TUBBY. No, sir; I have not had any trouble, but I have had a great many office men leave here and go back to the States without any reason except a wish to change or to get back to their people. During the fiscal year ending the 30th of June I think I had 30 clerks who returned to the United States.

The CHAIRMAN. Now, those are young men?

Mr. TUBBY. Young men.

The CHAIRMAN. They had free transportation down here, including their meals?

Mr. TUBBY. Yes.

The CHAIRMAN. And they could go back with free transportation and just enough to pay their subsistence on the way back?

Mr. TUBBY. Yes.

The CHAIRMAN. They knew that before they came down here?

Mr. TUBBY. Yes.

The CHAIRMAN. They had the advantage of seeing the country, and that is about all they came for?

Colonel GOETHALS. That statement is hardly correct, so far as the return is concerned. If they had not been in the service for a year they would not be entitled to the Government rate of \$20. If they had been in the service less than a year they would pay their fare back. After two years free transportation is given.

Mr. TUBBY. When the novelty wears off the salary is no object with many young men. For instance, I had a clerk recently who went back to the States receiving \$1,800 a year here, but he went back to the States to take a \$900 position.

Mr. BURLESON. That may be controlled by the temperament of a man who has a roving disposition.

Mr. TUBBY. Yes; but family affairs cut some figure.

Mr. MADDEN. Even if you did pay him a high salary, you could not induce him to stay?

Mr. TUBBY. No. That man was getting \$1,800.

Mr. BURLESON. You had no trouble in filling his place?

Mr. TUBBY. No.

The CHAIRMAN. You inspect, and the settlement and payment for supplies and materials is made on your inspection here on the Zone?

Mr. TUBBY. Yes, sir.

The CHAIRMAN. In addition to your establishment at Mount Hope, the Panama Railroad Company has a storehouse at Cristobal?

Mr. TUBBY. Yes, sir.

The CHAIRMAN. I want to ask you, Mr. Tubby: The present practice is for the Panama Railroad Company to draw supplies from the Commission storehouses that you are connected with, is it not?

Mr. TUBBY. Partly.

The CHAIRMAN. Could not the Isthmian Canal Commission, if authorized, supply from your storehouses to the Panama Railroad Company all the supplies which they use?

Mr. TUBBY. Practically all.

The CHAIRMAN. If that were done, would it not do away entirely with the necessity of the maintenance of a storehouse for the railroad company?

Mr. TUBBY. No, sir; we would have to maintain a storehouse at the shops. But we could maintain that with one-quarter of the money

value in stock that we do now, because we could draw from our Mount Hope store and from any surplus material that we might have at any other store for the use of the Panama Railroad.

The CHAIRMAN. Would there be any objection, so far as you know, to your doing that?

Mr. TUBBY. None whatever, if the money in payment reverted back to the appropriation.

The CHAIRMAN. Of course it would have to. The railroad company would simply have to pay the Isthmian Canal Commission for all supplies which they drew from the storehouses of which you are in charge.

Mr. TUBBY. Yes. It would simplify the billing between the two companies very much and result in a great deal of economy.

Mr. MADDEN. Wherein would the economy lie?

Mr. TUBBY. In not having to carry as large a stock.

Mr. MADDEN. What rate of interest would we be able to save on the amount of money invested in the additional stock?

Mr. TUBBY. It would also result in economy by purchasing the supplies for the Panama Railroad in larger quantities, and thereby get better prices. At present we naturally have to purchase in small quantities for the Panama Railroad.

The CHAIRMAN. It would also effect economy in the matter of management, would it not?

Mr. TUBBY. Yes, sir.

The CHAIRMAN. How much of a force is employed in the storehouse at Cristobal?

Mr. TUBBY. About 20 men.

Colonel GOETHALS. Could you do that without any increase in your own force?

Mr. TUBBY. We could cut that force down fully one-half.

Mr. KEIFER. How?

Mr. BURLESON. By an increase of ten men in his force he could cut that force down.

Mr. KEIFER. You do not now keep on hand railway supplies at all, do you?

Mr. TUBBY. Yes, sir.

Mr. KEIFER. Of all kinds?

Mr. TUBBY. Yes, sir.

Mr. KEIFER. I supposed that was kept by the railroad people.

Mr. TUBBY. No, sir; that is carried in stock until used.

Mr. MADDEN. What is the object of having a warehouse now at Cristobal controlled by the Panama Railroad Company, and how long has it been in existence?

Mr. TUBBY. It has always been in existence.

Mr. MADDEN. That was one of the fixtures there before the Canal Commission came, was it?

Mr. TUBBY. Yes.

Mr. MADDEN. Is that a part of the railroad business—a permanent fixture of the railroad business?

Mr. TUBBY. Yes.

Mr. MADDEN. Is there any particular reason why the Isthmian Canal Commission should undertake to run the railroad?

Mr. TUBBY. We would not be running the railroad. We would be simply furnishing supplies for them, to be taken out of the same class

of stock that we have to carry to operate our railroads for the building of the canal.

Mr. KEIFER. I had gotten the impression that the Commission got their railroad supplies from the railroad. That is the reason why I asked the question I did. I now understand it.

INSPECTION OF MATERIAL AND SUPPLIES.

The CHAIRMAN. What records do you make, Mr. Tubby, of the results of your inspection of material and supplies which come here?

Mr. TUBBY. We have here what we call an inspection call. That is signed by the storekeeper at Mount Hope, by the receiving clerk, and by the inspector of material.

The CHAIRMAN. How many inspectors have you under you?

Mr. TUBBY. One inspector.

The CHAIRMAN. He inspects all the material and supplies which come here?

Mr. TUBBY. He inspects all the material and supplies that are received at Mount Hope. If machinery is received, it is shipped out to the shop where it is intended to be installed, and inspected under the direction of the superintendent of motive power, who signs the inspection call and returns it to me. Lumber is inspected by a lumber inspector.

Mr. MADDEN. That is a different inspector from the other one, is it not?

Mr. TUBBY. That is a different one.

Mr. MADDEN. Then you have another inspector?

Mr. TUBBY. The lumber inspector is also the lumber foreman who, in addition to being lumber foreman, inspects the lumber.

The CHAIRMAN. Who inspects the groceries and provisions and vegetables, and other supplies of that kind?

Mr. TUBBY. For the commissary?

The CHAIRMAN. Yes.

Mr. TUBBY. That is the Panama Railroad, and Mr. Burke, the manager, does that. I have nothing to do with the commissary.

The CHAIRMAN. The railroad company runs the commissary?

Mr. TUBBY. They run the commissary.

Mr. KEIFER. You mean that for the use of the Commission employees, and all.

Mr. TUBBY. Yes.

Colonel GOETHALS. The commissary was originated by the Panama Railroad and utilized by the Commission because they could use the money they collected in the purchase of supplies, whereas the Commission would have to turn the money back to the Treasury Department.

Mr. KEIFER. It may be all right. I was merely trying to get it through my head.

Mr. GILLET. Does that include the hotel?

Colonel GOETHALS. No, sir. That is the commissary at Cristobal and those along the line. The Commission runs the hotels.

Mr. TUBBY. But the supplies for the hotels are largely purchased from the Panama Railroad commissary.

FIRE AT MOUNT HOPE STOREHOUSE.

The CHAIRMAN. How much property was destroyed by the fire at Mount Hope?

Mr. TUBBY. About \$250,000.

Mr. KEIFER. What kind of property was it, in general?

Mr. TUBBY. Medical supplies, furniture, ropes, hardware, lamps, mattresses, beds, and all kinds of miscellaneous furniture, such as you saw in the south end of the storehouse the other day; dishes for the hotels, etc.

Mr. BRICK. That happened last May?

Mr. TUBBY. That happened April 1, when Secretary Taft was here.

The CHAIRMAN. What was done with the damaged property, Mr. Tubby?

Mr. TUBBY. The damaged property was sorted over and all the salvage put into stock. There was a large amount of salvage in the shape of iron, brass, copper, and fittings. A great many fittings in the shape of valves that passed through the fire are being repaired at the Gorgona shops.

Mr. KEIFER. Who was carrying that stock then?

Mr. TUBBY. I was carrying it.

Mr. KEIFER. It had not been issued yet?

Mr. TUBBY. No, sir; not yet.

The CHAIRMAN. What is the cost of the furniture that is furnished by the Government in supplying a four-family house?

Mr. TUBBY. I could not answer that.

Colonel GOETHALS. Mr. Jackson Smith could answer that.

Mr. TUBBY. He draws the furniture, and I do not know what he puts in.

The CHAIRMAN. That is one of the inquiries that you have, Colonel. Have you got the answer?

Colonel GOETHALS. I have the answer to that. It is in the same table as the compensation.

Mr. TAYLOR. Is it itemized?

Colonel GOETHALS. No. But I can give you the items, because that information is in the Commission's proceedings.

PERSONNEL AND THEIR COMPENSATION.

Mr. BURLESON. What percentage of the 1,200 employees under your division are white and what percentage black?

Mr. TUBBY. About 300 are white, or 350.

Mr. BURLESON. About 25 per cent are white?

Mr. TUBBY. About 15 per cent of our pay roll, or 16 per cent of our pay roll, is used up in vacations and sick leaves.

Mr. BURLESON. Does a man usually take his entire thirty days' sick leave?

Mr. TUBBY. Not always. He will take about 50 per cent.

Mr. BURLESON. He takes about 15 days of the 30 days?

Mr. TUBBY. Yes. There are a great many of our men who take more than thirty days. Other men do not take any.

Mr. BURLESON. You say the wages paid are 60 to 100 per cent in excess of the wages of similar service in the United States?

Mr. TUBBY. Yes.

Mr. BURLINSON. Does that same difference of compensation run with the black as well as the white employees?

Mr. TUBBY. I don't know the wages paid on the islands. I don't know what compensation they receive on the islands.

Mr. BURLINSON. Well, you are paying them from 60 to 100 per cent more than would be paid for similar services in the United States?

Mr. TUBBY. Yes. When I say from 60 to 100, I refer to the railway clerks—

The CHAIRMAN. Who are doing similar work?

Mr. TUBBY. Yes. For instance, a clerk receiving \$1,500 per year would be rated from \$65 to \$75 in the United States.

Mr. MADDEN. Who rates them here?

Mr. TUBBY. Well, they are rated here by what you have to pay to get them to come down.

Mr. MADDEN. Who rates the men under you?

Mr. TUBBY. If I make a requisition for a man to come from the States, I will specify the rate.

Mr. MADDEN. You have the power to do that?

Mr. TUBBY. That has been the custom.

Mr. MADDEN. Are all the men under you in a clerical capacity under civil service?

Mr. TUBBY. Yes; all the clerical force is under civil service.

VALUE OF EQUIPMENT ON THE ZONE.

The CHAIRMAN. Mr. Tubby, can you tell the committee the value of our equipment now on the Zone or what it costs? I do not suppose you know the value, because there has been no inventory that has been taken on it. If you have a statement there, just give the total, and we will put the statement in the record.

Mr. TUBBY. This statement is up to September [indicating statement]. This statement shows the equipment received \$8,726,072.07, and on order \$3,476,683.29, making a total of \$12,202,755.36.

The CHAIRMAN. On hand and ordered?

Mr. TUBBY. Yes.

The CHAIRMAN. That was up to September 21?

Mr. TUBBY. Yes.

The CHAIRMAN. Does that statement show the number of feet of lumber that has been purchased by the Government?

Mr. TUBBY. No.

The CHAIRMAN. Can you give me the number of feet of lumber that has been bought and the number of feet stored and the number of feet in stock?

Mr. TUBBY. The number of feet of lumber received to date is 83,926,000 and on order 20,639,000, making a total received and on order of 104,565,000.

The CHAIRMAN. How much of that is in stock?

Mr. TUBBY. About 10,000,000.

Mr. TAYLOR. Have you the cost of it, too?

Mr. TUBBY. No; but it will average close to \$25 a thousand. We have consumed 73,000,000 feet.

The CHAIRMAN. Does that statement give the number of steam shovels and locomotives?

Mr. TUBBY. Yes. That statement gives all the equipment.

The CHAIRMAN. What statement is that you have there?

Mr. TUBBY. This is the statement of lumber. Now we issued from January 1 to May 31, 1907, 17,522,000 feet of lumber, and since that date about 15,000,000 feet.

The CHAIRMAN. So that you have issued about 32,000,000 feet of lumber this calendar year?

Mr. TUBBY. Yes; in this calendar year.

Following is the statement above referred to:

List of material received.

Description.	Number.	Value.
Bucyrus steam shovels:		
45-ton.....	3	\$22,100.00
70-ton.....	28	263,130.00
95-ton.....	32	400,559.96
Total.....	63	685,789.96
Steel flat cars, 50-ton.....	500	430,500.00
Wooden flat cars, 40-ton.....	1,485	1,596,543.00
Western dump cars:		
Small.....	300	311,100.00
Large.....	300	645,000.00
4-yards ^a	35	7,945.00
Ingoldsby dump cars.....	12	17,480.00
Goodwin dump cars.....	12	31,500.00
King-Lawson dump car.....	1	2,669.79
Total.....	2,645	3,042,717.79
Lidgerwood unloaders:		
10 by 12.....	6	
12 by 12.....	16	
Total.....	22	122,404.00
Ballast center plows.....	6	5,400.00
Ballast side plows.....	30	27,525.00
Total.....	36	32,925.00
Mann-McCann spreaders.....	9	37,969.00
Jordan spreaders.....	4	15,332.00
Total.....	13	53,321.00
Mogul locomotives, 19 by 24.....	100	1,130,700.00
Switching locomotives, 19 by 24.....	40	459,600.00
Mogul locomotives, 20 by 26.....	20	236,300.00
Total.....	160	1,826,600.00
Bucyrus wrecking cranes:		
100-ton.....	1	14,965.00
75-ton.....	1	12,460.00
70-ton.....	1	12,450.00
American Hoist and Derrick Co., wrecking crane, 10 to 20 ton.....	1	6,700.00
Total.....	4	46,585.00
Industrial Works pile drivers.....	2	18,000.00
Dipper dredge, 3 to 5 yard.....	2	205,000.00
Seagoing suction dredge.....	1	367,794.00
Dipper dredge, 5-yard.....	1	100,000.00
Total.....	4	672,794.00
NOTE.—No invoices have been received covering either above items.		
Seagoing tug.....	1	42,000.00
Barges:		
15 by 40.....	6	14,520.00
25 by 75.....	5	44,500.00
Dump barges, 350 to 400 yards.....	6	149,000.00
Total.....	17	208,020.00

^a NOTE.—Invoices have not been received for last six barges.

^a The 4-yard western dumps are narrow gauge.

List of material received—Continued.

Description.	Number.	Value.
Rands air compressors:		
Type X.....	4	\$17,873.50
Type 10.....	4	22,004.00
Franklin air compressors, type G-DSC.....	3	8,628.27
Laidlaw-Dunn-Gordon air compressors.....	6	31,800.00
Portable air compressors, 7½ by 8 inches.....	2	2,382.00
Portable F. M. & Co. air compressor.....	1	1,700.00
Total.....	20	84,387.77
Pierce well-boring rock drills:		
4-inch.....	2	834.50
6-inch.....	1	919.25
Little Giant rock drills:		
No. 4.....	25	9,195.75
No. 5.....	25	13,233.30
Chicago rock drills, 3½-inch.....	25	8,989.80
Star rock drills, No. 40.....	10	9,825.00
Sullivan rock drills, U-7.....	25	8,517.00
Ingersoll rock drills:		
F-32.....	81	28,962.80
GA-2.....	25	14,284.50
A-50.....	28	5,890.57
Little Jap.....	2	
Keller rock drills, 1½-inch.....	25	2,486.00
Star rock drills, churn.....	43	31,820.75
Keystone rock drills, churn.....	2	1,010.00
Total.....	339	135,969.02
Rigid head channelers, "Y".....	13	8,978.42
Champion rock crushers, No. 3.....	2	1,535.00
McGully rock crushers:		
No. 5.....	1	8,075.00
No. 8.....	1	
Gates rock crushers:		
No. 8.....	1	17,908.35
No. 5.....	2	
Total.....	7	27,518.35
Steel rails:		
85-pound.....		159.28
70-pound.....		740,119.15
Total.....		740,278.53
Track bolts, ½ and ¾ inch..... pounds.	587,000	16,754.10
Track spikes, ½ by 5½ inch..... do.	2,215,000	47,820.00
Angle bars.....	228,996	85,968.55
Tie plates.....	1,391,170	98,512.26
Rail bracers.....	38,500	3,775.00
Switch chairs.....	500	340.00
Track-bolt washers..... pounds.	7,200	162.30
Cross-ties.....	557,568	486,334.29
Switch ties.....	18,073	26,772.72
Split switches, 70-pound, 15-foot..... sets.	871	22,690.45
Switch points, 70-pound, 15-foot.....	100	735.00
70-pound frogs:		
No. 6.....	128	2,506.00
No. 7.....	522	10,648.00
No. 8.....	12	258.60
No. 9.....	265	5,873.35
Total.....	927	19,285.95
Switch stands.....	598	5,355.00
Otto water cranes, 10-inch.....	12	2,400.00
Mansfield water cranes, 8-inch.....	2	280.00
Total.....	14	2,780.00
Turntables, 60-foot.....	2	2,946.00
Railway water tanks, standard.....	16	9,211.06
United States navy launches, 36-foot.....	2	12,339.67
Coaling cranes:		
10-ton.....	5	31,245.00
20-ton.....	4	32,350.00
Total.....	9	63,595.00

* Gross tons for 85-pound steel rails, 4144½; 70-pound, 26,50244½; total, 26,50744½.

214 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

List of material received—Continued.

Description.	Number.	Value.
Hoisting engines:		
63 by 10.....	4	\$3,600.00
7 by 10.....	12	10,075.00
84 by 12.....	4	3,196.00
Lidgerwood hoisting engines, No. 71.....	2	2,226.50
Total.....	22	19,096.50
Concrete mixers:		
1-yard.....	2	2,710.00
No. 2.....	1	1,285.00
No. 3.....	3	3,405.00
Total.....	6	7,400.00
Road rollers:		
4 to 5 ton.....	1	1,239.00
7 to 10 ton.....	3	8,145.00
12 to 13 ton.....	1	2,595.00
Total.....	5	11,979.00
Concrete building-block machines.....	3	2,250.00
Motor cars:		
No. 16.....	1	850.00
No. 2.....	1	820.00
Total.....	2	1,670.00

Summary of material received.

Articles.	Number.	Value.
Steam shovels.....	63	\$685,789.96
Cars.....	2,645	3,042,717.79
Unloaders.....	22	122,404.00
Ballast plows.....	36	32,925.00
Earth spreaders.....	13	53,321.00
Locomotives.....	160	1,826,000.00
Wrecking cranes.....	4	46,585.00
Pile drivers.....	2	18,000.00
Dredges.....	4	672,794.00
Tug.....	1	42,000.00
Barges.....	17	208,020.00
Air compressors.....	20	84,387.77
Power drills.....	339	125,998.00
Channeleers.....	13	38,978.42
Rock crushers.....	7	27,518.35
Rails..... gross tons.....	26,507	740,278.53
Track bolts..... pounds.....	587,000	16,754.10
Track spikes..... do.....	2,215,000	47,820.00
Angle bars.....	228,998	85,968.58
Tie plates.....	1,391,170	98,512.25
Rail braces.....	38,500	3,775.00
Switch chairs.....	500	340.00
Track-bolt washers..... pounds.....	7,200	162.30
Cross-ties.....	557,568	486,334.29
Switch ties.....	18,073	26,772.72
Sets split switches.....	871	22,669.45
Switch points.....	100	735.00
Frogs.....	927	19,287.35
Switch stands.....	598	5,355.00
Water cranes.....	14	2,780.00
Turntables.....	2	2,948.00
Water tanks.....	16	9,211.06
Launches.....	2	12,339.67
Coaling cranes.....	9	63,595.00
Hoisting engines.....	22	19,096.50
Concrete mixers.....	6	7,400.00
Road rollers.....	5	11,979.00
Concrete-block machines.....	3	2,250.00
Inspection motor cars.....	2	1,670.00
Total.....		8,726,072.07

List of material due.

Description.	Number.	Value.
Bucyrus steam shovels:		
45-ton.....	7	\$49,000.00
70-ton.....	11	• 108,900.00
Marion steam shovels, 20-inch.....	1	5,787.50
Bucyrus steam shovels, 95-ton.....	12	• 148,900.00
Total.....	31	312,487.50
Wooden flat cars, 40-ton.....	300	339,687.00
Metal dump cars, 12-yard.....	508	562,500.00
36-inch gauge double dump cars, 4-yard.....	115	• 26,105.00
Total.....	915	928,292.00
Lidgerwood unloaders, 60-ton.....	10	61,477.50
Slide plows, ballast.....	6	6,420.00
Mann-McCann spreaders, earth.....	10	66,070.00
Narrow-gauge locomotives.....	12	• 36,000.00
Seagoing dredge^b.....	1	367,794.00
Suction dredge:^c		
20-inch.....	1	86,750.00
20-inch.....	2	186,700.00
Total.....	4	641,244.00
Seagoing tugs.....	2	• 116,000.00
Dump barges, 350-400 yards.....	3	57,000.00
Barges.....	6	60,000.00
Barges, 35 by 156 feet, for sands.....	12	240,000.00
Total.....	21	• 357,000.00
Compressors, complete plant for La Boca locks.....		• 60,000.00
Crushers, complete rock-crushing plant for Porto Bello.....	1	65,449.87
Steam churn drills for Panama R. R.....	12	9,982.40
Steam churn drills.....	30	28,950.00
Rock drills, 3½-inch.....	50	14,998.50
Ingersoll rock drills, 3½-inch.....	6	1,412.00
Total.....	98	• 55,342.90
Ingersoll-Rand channelers, H-8.....	2	5,483.00
Sullivan channelers.....	11	32,981.58
Total.....	13	38,474.58
Steel rails:		
70-pound..... gross tons.....	7,825	248,443.75
30-pound..... do.....	200	7,160.00
Total.....	8,025	• 255,603.75
Track bolts:		
1-inch.....	308,000	\$7,946.40
1-inch.....	6,000	190.80
Total.....	314,000	• 8,137.2
Track spikes:		
1 by 5½.....	800,000	18,800.00
1 by 4.....	24,000	604.80
Total.....	824,000	• 19,404.80
Steel anglebars:		
70-pound.....	51,700	18,508.00
30-pound.....	3,500	396.00
Total.....	55,200	• 18,904.00
Tie plates.....	20,000	• 1,600.00
Standard cross-ties.....	369,559	335,067.70
Bridge ties.....	16,300	16,165.60
Switch ties.....	21,792	35,800.20
Narrow-gauge ties.....	20,000	8,000.00
Total.....	427,651	• 359,083.50

• Estimated.

b For the "Culebra."

c "Knockdown" and will be erected here.

d Value figured at twice the cost of one lately purchased.

216 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

List of material due—Continued.

Description.	Number.	Value.
Split switches, 70-pound, 15-foot.....sets..	225	\$4,950.00
Stub switches, 30-pound.....do.....	24	324.00
Total.....do.....	249	\$5,274.00
Frogs:		
No. 7, 70-pound.....	175	3,500.00
No. 6, 70-pound.....	12	240.00
No. 9, 70-pound.....	12	300.00
No. 10, spring-rail, 70-pound.....	25	875.00
No. 5, 30-pound.....	24	198.00
Total.....	248	\$5,113.00
Ground-thrower switch stands, 70-pound.....	420	3,150.00
High-tagret switch stands, 70-pound.....	60	600.00
Low-target switch stands, 70-pound.....	70	595.00
Total.....	550	\$4,345.00
Railway water tanks, standard.....	8	4,427.00
Concrete mixers.....	4	\$2,000.00
Holisting engines:		
7 by 10.....	4	3,650.00
8½ by 12.....	2	3,300.00
Total.....	6	\$6,950.00
Steam wood roller, 8-ton.....	1	\$2,800.00
Gasoline motor cars.....	3	\$2,810.00

a Estimated.

Summary of material under contract.

Articles.	Number.	Value.
Steam shovels.....	31	\$312,487.50
Cars.....	915	928,292.00
Unloaders.....	10	61,477.50
Ballast plows.....	6	6,420.00
Earth spreaders.....	10	66,070.00
Locomotives.....	12	36,000.00
Dredges.....	4	641,244.00
Tugs.....	2	116,000.00
Barges.....	21	357,000.00
Compressor plant.....	1	60,000.00
Rock-crusher plant.....	1	65,449.87
Power drills.....	98	55,342.90
Channelers.....	13	38,474.38
Rails.....gross tons..	8,025	255,603.75
Track bolts.....pounds..	314,000	8,137.20
Track spikes.....do.....	824,000	19,404.80
Angle bars.....	55,200	18,906.69
Tie plates.....	20,000	1,600.00
Ties.....	427,651	395,053.50
Split switches.....sets..	249	5,274.00
Frogs.....	248	5,113.00
Switch stands.....	550	4,345.00
Water tanks.....	8	4,427.00
Road roller.....	1	2,800.00
Motor cars.....	3	2,810.00
Concrete mixers.....	4	2,000.00
Holisting engines.....	6	6,950.00
		3,476,683.29

RECAPITULATION.

Received.....	\$8,726,072.07
On order.....	3,476,683.29
Total.....	12,202,755.36

Statement of lumber issued from January 1 to May 1, 1907.

RECAPITULATION.

	Linear measure.	Board measure.
	<i>Feet.</i>	<i>Feet.</i>
Mechanical Division.....		504,944
Division of M. and R. H.....		1,380
Division of Municipalities.....		7,128
Department of Sanitation.....		76,132
Superintendent Public Works.....		8,878
Disbursing Department.....		13,465
Other concerns and individuals.....		4,000
Division Engineer, La Boca.....		72,798
Division Municipal Engineering.....		867,257
Division Engineer, Colon.....	2,160	476,148
Division Engineer, Culebra.....	17,190	1,450,225
Panama Railroad Co.....	2,894	782,075
Master Builder.....	171,924	18,777,711
Total.....	194,168	17,542,141

November 9, 1907.

	Feet R. M.
Lumber received to date.....	83,920,000
Lumber on order at present.....	20,639,000
Total received and on order.....	104,565,000

Mr. TUBBY. Now, we have received on the Isthmus since December 1, 1905, to September 30, 1907, that I have taken into my accounts, \$19,134,941.

The CHAIRMAN. That is material and supplies?

Mr. TUBBY. Yes. I took charge, practically, the 1st of December, 1905, and up to that date, in the previous two years, there had been received in supplies \$4,987,534.27.

Mr. KEFER. In value?

Mr. TUBBY. Yes, sir.

The CHAIRMAN. Is that Municipal Engineering Department under Mr. Rousseau?

Mr. TUBBY. Yes, sir.

The CHAIRMAN. Have you any other data there that you think would be of value to the committee?

SICK LEAVE AND VACATION LEAVE.

Mr. TUBBY. Here is a statement of the sick leave and vacation pay for the fiscal year 1906-7, amounting to \$28,689.63, and during July, August, September, and October of this year, \$15,004.83. Here are the statements:

218 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Statement of payments made for sick leave and vacation leave during the period from July 1, 1906, to June 30, 1907.

[Division of Material and Supplies.]

	Sick leave.	Vacation leave.	Combined.
Main office.....	\$4,157.89	\$11,682.57	\$15,840.46
Oristobal stores.....	1,337.79	2,599.25	3,937.04
Gatun corral.....	16.37		16.37
Gorgona.....	293.78	539.14	832.92
Empire store.....	546.15	2,402.07	2,948.22
Paraiso store.....	106.67		106.67
La Boca stores.....	86.50	820.50	907.00
Ancon store.....	74.16	368.00	442.16
Ancon corral.....	195.99	1,694.01	1,890.00
Panama.....	433.74	1,345.05	1,778.79
Total.....	7,239.04	21,450.59	28,689.63

Statement of payments made for sick leave and vacation leave during the period from July 1, 1907, to October 31, 1907.

[Division of Material and Supplies.]

Station.	Sick leave.	Vacation leave.	Combined.
Main office.....	\$802.65	\$5,113.06	\$5,915.71
Oristobal stores.....	830.09	4,267.27	5,077.27
Gatun corral.....			
Gorgona.....	151.02	618.00	772.62
Empire.....	330.23	937.50	1,317.73
Paraiso.....	80.00		80.00
La Boca.....	36.66	373.33	409.99
Ancon stores.....	25.00		25.00
Ancon corral.....	97.33	266.67	364.00
Panama.....	14.17	1,028.34	1,042.51
Total.....	2,410.06	12,594.77	15,004.83

PROPERTY TURNED OVER BY THE FRENCH.

Mr. BURLISON. Was any stock turned over to you or your predecessor which belonged to the French Company?

Mr. TUBBY. Yes.

Mr. BURLISON. How much?

Mr. TUBBY. All the French stock on the Isthmus. All the French stock on the Isthmus is supposed to be under my charge. When any of it is used we fix a price, and it is charged out, and the French account credited.

Mr. BURLISON. You mean these dredges, and all these things?

Mr. TUBBY. Yes.

Mr. BURLISON. When you issue it you fix a charge?

Mr. TUBBY. Yes.

Mr. BURLISON. How much have you issued?

Mr. TUBBY. Between December 1, 1905, and September 30, 1907, we issued and charged out \$349,343.31 worth.

Mr. MADDEN. Does that include all the locomotives—

Mr. KEIFER. That have been used?

Mr. TUBBY. Prior to that time, or up to December 31, 1905, there was French material used and charged out amounting to \$494,418.34.

Mr. MADDEN. How do you arrive at the figures of the value of the stuff?

Mr. TUBBY. Well, if it is of copper or brass that is going to be used as scrap in our foundry, we could appraise it.

Mr. MADDEN. Suppose it is a dredge?

Mr. TUBBY. The Board of Survey would fix a price.

Mr. MADDEN. Suppose it was a locomotive?

Mr. TUBBY. The Board of Survey would fix the price.

Mr. MADDEN. Who is the Board of Survey?

Mr. TUBBY. It is made up of members of the Engineering Department appointed by the Chairman.

Mr. MADDEN. That is a permanent board

Mr. TUBBY. Yes. They pass on all the material.

Mr. KEIFER. They estimate the value of the material in its bad condition at the time of the estimate?

Mr. TUBBY. They would make up an estimate of value, figuring from our American prices. If it was brass they were going to use in our foundry, they would credit it at the same price as American brass or copper or cast iron would cost us.

Mr. MADDEN. Have you an inventory of all the locomotives and dredges and tools and machinery on the Isthmus that originally belonged to the French company? [Laughter.]

Mr. TUBBY. No, sir.

Mr. MADDEN. He said something a moment ago to the effect that—I do not think there is anything to laugh at—he said a moment ago that all of this stuff was under his jurisdiction, and that he had control over its distribution, and that nobody could use any part of this stuff unless it was charged to the department that took it, through his office. If that is the case, he ought to have an inventory of it.

Colonel GOETHALS. But the trouble is, Mr. Madden, that we are discovering this stuff all through the jungle, just as we found a group of houses at Caimeto.

Mr. TUBBY. We are locating material every week in the jungle that has grown over.

The CHAIRMAN. How many have you charged out?

Colonel GOETHALS. I have that all ready in the statement that is in the notes.

The CHAIRMAN. At what price were the French locomotives charged out to the department by you?

Mr. TUBBY. At about \$600 each.

Mr. BRICK. How did you fix that value?

Mr. TUBBY. By the Board of Survey.

Mr. BURLISON. You spoke of a loss of \$250,000 by fire. Did you take into account the salvage when you made that estimate?

Mr. TUBBY. Yes, sir.

The CHAIRMAN. Why do you charge anything for that except the repairs? The Government has bought and paid for them in the \$40,000,000 purchase.

Mr. TUBBY. We do that so that we will know what value of material we have received of the French stock.

Mr. TAYLOR. That is the way he makes his invoice.

Mr. BURLISON. If they do not use it, then, in the construction of the Canal, you attach no value to it at all?

Mr. TUBBY. No value to it—

Mr. TAYLOR. Until you put it all up for sale later on.'

SCRAP IRON SHIPPED TO THE UNITED STATES.

The CHAIRMAN. How much of this French material has been shipped to the States as scrap iron?

Mr. TUBBY. About 14,000 tons.

The CHAIRMAN. What did it sell for?

Mr. TUBBY. It averages about \$5 a ton. The Government received \$4 a ton duty in addition, and the Panama Railroad \$4 a ton freight, and the Panama Railway \$1.25 for handling it at the New York end and loading it in the ships at this end, beside the freight of hauling it in from the line, at the rate of \$2.50 a carload.

The CHAIRMAN. I thought the Panama Railroad Company hauled it to New York as ballast, free.

Colonel GOETHALS. No, sir; the Panama Railroad Company hauls nothing free. [Laughter.]

The CHAIRMAN. What did it sell for per ton?

Mr. TUBBY. We realized about \$5 a ton.

The CHAIRMAN. What was done with the proceeds from the sale of that scrap iron?

Mr. TUBBY. It was paid into the United States Treasury.

Mr. BURLESON. Why don't you send more of it?

Mr. TUBBY. Well, we are sending all that the Panama Railroad ships can take. When they are short of cargo, we fill up with scrap.

Mr. KEIFER. You have a large foundry here?

Mr. TUBBY. Yes; we have a large foundry here that uses about 10 tons a day.

Mr. GARDNER. Where do you credit that account of 12 tons a day obtained from the French?

Mr. TUBBY. We credit that to the French account.

Mr. GARDNER. Do you know how much has been used in the aggregate?

Mr. TUBBY. That is included in the amount given. Offhand, I could not say how many tons of cast scrap we have used.

The CHAIRMAN. That is worth more than \$5 a ton here.

Mr. TUBBY. We are not shipping any cast scrap. We charge that out at about \$10 a ton when we use it here. Then there is an enormous quantity of brass scrap used in the foundry.

Mr. KEIFER. Where does that come from?

Mr. TUBBY. The old French stock. They had enormous quantities of new brass in stock for their locomotives and equipment.

The CHAIRMAN. Some of it had to be recast in different patterns?

Mr. TUBBY. Yes. For instance, I have recovered from the jungle within the last week two tons of brass at Pedro Miguel.

The CHAIRMAN. What is brass worth per ton?

Mr. TUBBY. It is worth about 10 cents per pound as scrap. Occasionally we request the Board of Survey to examine and pass upon and condemn, for either use or sale, the French material in a certain section. At present they are working at Pedro Miguel. At Pedro Miguel we find material that is good, and usable for repairs to the dredges. That will either be shipped to La Boca or to the dry dock at Cristobal. Other material will be condemned as cast scrap for the foundry—brass or copper for the foundry.

The CHAIRMAN. Do you find much copper?

Mr. TUBBY. Not much. Other material will be shipped to the Mount Hope store, or the Gorgona store, or the Empire store.

The CHAIRMAN. How does the French material compare in quality with the material that we are purchasing now, as a rule?

Mr. TUBBY. The French material, I should say, was of better quality.

The CHAIRMAN. How are their car wheels?

Mr. TUBBY. They are good.

Mr. BURLESON. As compared with ours, though, Mr. Tubby.

Mr. TUBBY. Our car wheels, made in the United States, are good, both cast and steel tires. At the time the French were here we imported most of our tires for use in the United States from either England or Germany, generally from Krupp. In fact, some of the railroads in the United States are doing that to-day, so that the French material as a whole was of good quality. They used the best the market produced, I think, at that time.

PERSONNEL AND THEIR COMPENSATION (AGAIN).

The CHAIRMAN. Mr. Tubby, the position you occupy here is practically the same position you occupied at St. Paul when you were employed by the Great Northern Railroad?

Mr. TUBBY. Practically the same.

The CHAIRMAN. The clerks you had in your employ there correspond in the work they had to do with the clerks you employ here?

Mr. TUBBY. Yes, sir.

The CHAIRMAN. And your statement of the difference in compensation to the clerks paid under you here and clerks in similar work in the United States is based on your own experience?

Mr. TUBBY. It is based on my own experience.

Mr. BURLESON. What is the necessity, Mr. Tubby, of paying these Jamaica negroes from 60 to 100 per cent more than is being paid to American laborers in America for doing like work? They are not affected by the climatic conditions, because the climatic conditions here are similar to those in the country they came from.

Mr. TUBBY. Our colored laborers are paid 20 cents silver, 10 cents gold, per hour.

Mr. BURLESON. I am only talking about the clerks in your establishment—nothing but your establishment.

Mr. TUBBY. No; I did not say colored clerks. I do not know what wages are paid colored clerks in the islands.

Mr. BURLESON. The colored clerks doing the same character of work that is done in America, you say you are paying from 60 to 100 per cent more?

Mr. KEIFER. He has not any colored clerks.

Mr. TUBBY. Oh, yes; I have colored clerks and colored stenographers.

Mr. TAYLOR. Are the colored clerks you have Jamaicans or Americans?

Mr. TUBBY. Jamaicans.

Mr. TAYLOR. What do you pay them?

Mr. TUBBY. \$40 gold, or \$80 silver; some \$50, and some as high as \$60.

The CHAIRMAN. A month?

Mr. TUBBY. Yes.

Mr. BURLESON. That is about what you are paying in America for the same kind of work?

Mr. TUBBY. It would be a little lower.

Mr. BRICK. Do they get quarters and all the perquisites that the whites get?

Mr. TUBBY. A number of the colored men have quarters, but not all.

The CHAIRMAN. Do you know what salaries or compensation these Jamaican clerks receive in Jamaica?

Mr. TUBBY. No, sir; I do not, Mr. Chairman.

Mr. BURLESON. Do you have any difficulty in filling their places when they are vacated?

Mr. TUBBY. Yes; there is considerable difficulty in filling the clerical positions with good colored men.

Mr. TAYLOR. Due to what—to incapacity?

Mr. TUBBY. Due to the fact that very few of them are competent.

Mr. MADDEN. Are all these fellows under civil service?

Mr. TUBBY. No.

Mr. MADDEN. I understood you to say, when I asked you a while ago, that all were under civil service.

Mr. TUBBY. The white ones are.

The following additional statements were filed by Mr. Tubby:

[Mr. E. C. Tobey's accounts.]

Statement of supplies issued and received by the division of material and supplies to December 1, 1905.

RECEIPTS.

	To June 30, 1905.	July 1, 1905, to Dec. 1, 1905.	Total.
United States bills.....	\$1,249,508.94	\$3,001,822.21	\$4,251,331.15
United States Department bills.....		53,528.38	53,528.37
Local bills.....	232,207.79	173,810.53	406,018.32
Pennsylvania R. E. bills.....	100,649.61	175,926.82	276,576.43
Returned to stock.....		80.00	80.00
	1,582,366.34	3,405,167.98	4,987,534.27

ISSUES.

	New stock.	Sales.
To June 30, 1905.....	\$1,105,683.54	
July, 1905.....	141,429.44	
August, 1905.....	193,981.06	
September, 1905.....	232,946.35	
October, 1905.....	290,962.66	
November, 1905.....	1,342,169.15	
Inventory.....	1,326,919.37	
Sales.....		\$11,965.79
	4,694,041.56	11,965.79

Total receipts..... \$4,987,534.27

Total issues..... 4,705,997.35

In suspense..... 281,536.92

Total French stock, \$494,418.54.

[Mr. W. G. Tubby's accounts.]

Statement of supplies received and issued by the division of material and supplies December 1, 1905, to September 30, 1907.

RECEIPTS.

	Dec. 1, 1905, to June 30, 1906.	July 1, 1906, to April 30, 1907.	May 1, 1907, to July 1, 1907.	July 1, 1907, to Sept. 30, 1907.	Total.
Inventory, December 1, 1905.	\$1,326,919.37				\$1,326,919.37
United States bills.	4,612,605.35	\$5,754,228.65	\$2,189,663.33	\$3,109,330.57	15,665,817.90
United States department bills.		9,146.90	34,150.64	14,123.86	58,426.40
Local bills.	58,493.33	12,277.81	9,529.53	8,930.25	89,231.02
Panama R. R. bills.	249,274.11	408,537.45	322,731.45	382,153.60	1,362,696.61
Manufactured for stock.	14,408.68	341,016.80	60,422.63	119,725.91	535,574.02
Returned to stock.	42,483.27	22,798.23	9,568.70	25,430.89	100,276.14
	6,304,184.11	6,547,000.89	2,626,066.28	3,659,700.18	19,136,941.46

ISSUES.

	New stock.	Sales.
December 1, 1905, to June 30, 1906.	\$3,417,337.26	\$89,007.42
July 1, 1906, to April 30, 1907.	7,938,507.02	253,602.46
May 1, 1907, to June 30, 1907.	1,537,230.17	74,438.14
July 1, 1907, to September 30, 1907.	2,538,354.48	52,079.23
	15,431,918.93	469,127.25
Total reported issues.	\$15,901,226.18	
Issued prior to October 1, 1907, and not reported to disbursing officer.	600,000.00	
Total issues.	16,501,226.18	
Total receipts.		\$19,136,941.46
Total issues.		16,501,226.18
Balance on hand.		2,635,715.28
Total French stock issued, \$349,343.21.		

Statement of number, kind, and location of material and supplies vehicles November 1, 1907.

Location.	Wagons.	Carts.	Carriages.	Wagonettes.	Ambulances.	Scrapers.	Miscellaneous vehicles.	Total.
Cristobal corral.	36	22	5	2	2		6	72
Bocos del Torro.		1						1
Gatun corral.	19	5	1		1	4		30
Tabernilla.	1	3						4
Gorgona corral.	5	6				5	1	17
Bas Obispo corral.	3	1						4
Empire corral.	27	21				7		55
Oulebra corral.	20	10		1	1	2		34
Paraiso corral.	3	5						8
Pedro Miguel.	1	2						3
Corozal corral.	2	3						5
La Boca.	2	2						4
Ancon corral.	50	24	17	6	4	12	15	127
Total.	168	105	23	9	8	30	22	364

224 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Location and number of live stock stabled and foraged by the Material and Supplies Department, November 1, 1907.

Location.	Material and Sup- plies, mules.	Material and Sup- plies, horses.	Police horses at corral.	Private owners, expense.	Private Isthmian Canal Commis- sion ex- pense.	Panama Railroad, live stock.	Total at corrals.
Oristobal corral.....	87	12	1			10	110
Bocos del Torro.....	1						1
Gatun corral.....	57	4	4		1		66
Bohio *.....	1						1
Tabernilla *.....	6	1					7
Gorgona corral.....	13	2	1	1			17
Bas Obispo corral.....	15	4					19
Empire corral.....	58	9	7	4			78
Oulebra corral.....	55	8		12			75
Paraiso corral.....	12	2	1		1		16
Pedro Miguel *.....	4						4
Miraflores *.....	2						2
Corozal corral.....	6	1	1				8
La Boca corral ^b	4	3					7
Ancon corral.....	128	57	7	27			219
Total.....	449	108	22	44	2	10	630

* Foraged and shod, but cared for by department to whom assigned at places thus marked.

^b Fire Department furnished forage for their animals on requisition by Material and Supplies. Police Department horses located at police stations, but not at Material and Supplies corrals, also furnished forage on requisition by Material and Supplies.

CRISTOBAL, November 9, 1907.

Mr. W. G. TUBBY,

Chief, Division Material and Supplies, Cristobal.

SIR: In accordance with your request I beg to submit the following statement of Material and Supplies (live stock) which have died or been condemned and sold during the fiscal year 1906-7:

Kind.	Died.	Condemned and sold.	Total.
Horses.....	5	2	7
Mules.....	19	16	35
Total.....	24	18	42

Respectfully,

W. B. BURSON,
*Superintendent Transportation,
Division Material and Supplies.*

*Number of employees, animal transportation, Division of Material and Supplies,
October 1, 1907.*

Superintendent of transportation.....	1
Veterinary surgeon.....	1
Assistant veterinary surgeon.....	1
Corral foremen.....	6
Clerks.....	2
Coachmen.....	9
Teamsters.....	167
Cart drivers.....	104
Stablemen.....	38
Shop employees.....	41
Watchmen.....	4

Night stablemen.....	4
Veterinary nurses or helpers.....	7
Assistant foreman.....	1
Messenger.....	1
Mule clippers.....	4
Laborers.....	6
Total number of employees.....	397

CRISTOBAL, November 13, 1907.

HON. JAMES A. TAWNEY,
*Chairman Appropriation Committee,
 Cristobal; Canal Zone.*

SIR: In compliance with your request, I beg to inclose the following statements:

Organization and operation of the Division of Material and Supplies.

Explosives purchased since the inception of the Canal work.

French scrap sold and shipped to the United States and issued to the iron and brass foundries at Gorgona.

Piles, treated and untreated, received.

Material purchased—covering a number of important items—from inception of the work, 1904, to November 12, 1907.

Supplemental statement of equipment on order and received since September 21, 1907. (List to be added to statement already furnished you.)

Statement of lumber received and on order has already been furnished you.

I also inclose sample set of papers showing how the French material is passed upon by the Board of Survey and Appraisal, who ascertain whether material can be used in connection with the work and if not condemn it for scrap or sale. The statements show a quantity of French material located at San Pablo, Tabernilla, Frijoles, Bohio, and along the old tracks of the French Canal Company which has recently been passed upon. In this way no French material is scrapped or condemned for sale without first ascertaining whether it can be used in connection with the work.

Very respectfully,

W. G. TUBBY,

Chief, Division of Material and Supplies.

ISTHMIAN CANAL COMMISSION,
 CANAL ZONE, HEADQUARTERS, CRISTOBAL, October 31, 1907.

ORGANIZATION AND OPERATION OF THE DIVISION OF MATERIAL AND SUPPLIES.

The Division of Material and Supplies was created by a resolution of the Commission at their forty-third meeting, held August 31, 1904, and the duties specified in the resolution are practically as follows:

The Chief of the Division of Material and Supplies shall be charged with the receipt, inspection on the Isthmus, custody, care, shipment, transfer, issue, and disposition of all supplies, material, equipage, and floating equipment unissued and not in use.

This is essentially the outline of the jurisdiction of this division at the present time. My jurisdiction also extends so as to include the local transportation system, the printing plant in the administration building at Panama, and the shop for repairing typewriters.

MATERIAL AND SUPPLIES.

The scope of the work performed by this division is so extensive that I have, for convenience, divided same into several general heads with subdivisions under each head. The first general head that is suggested is Material and Supplies, and under this heading the subdivisions will be class of supplies handled; requisitions for new supplies; receipt, inspection, and disposition of supplies; care and custody of material and supplies; manufacturing orders; accounting for material and supplies issued; inventory and property returns; sale of scrap and unusable materials; sales of other materials; storehouses and places of storage.

Class of supplies handled.

The diversity of work found in the construction of the Panama Canal necessitates the purchase and use of an almost endless variety of equipment, material for repairs, and small supplies for maintenance.

It has been necessary to purchase rails and other track material, locomotives, cars, steam shovels, cranes, pile drivers, drills, unloaders, earth spreaders, and other equipment for the physical work of excavation, and the disposition of the excavated material: lumber, roofing, hardware, plumbing, and all classes of building material for the construction, repair, and maintenance of gold and silver quarters, shops, storehouses, oil houses, hospitals, hotels, laborers' kitchens, penitentiaries, jails, post-offices, office buildings, clubhouses, cold-storage and ice plants, laundry, bakeries, etc.; equipment, appliances, medicines, drugs, etc., for hospitals, dispensaries, and sick camps; machinery, tools, and supplies for the shops, planing mills, foundries, roundhouses, etc.; equipment and supplies for the police and fire departments; furniture, dishes, and equipment for gold and silver quarters, hotels, and laborers' kitchens; track material and tools for the construction, repair, and maintenance of tracks; animals, vehicles, forage, and corral supplies for local transportation; stone crushers, rollers, cement, sewer and water pipe, brick, and other materials for the use of the Division of Municipal Engineering; dredges, tugs, lighters, barges, and other floating equipment for the marine work; and numberless other items used in connection with the operation, repair, and maintenance of the equipment named, together with a supply of standard materials and supplies for stock at the various storehouses, for the shops, and for the use of all the different departments on the Isthmus.

These supplies consist of repair parts for locomotives, steam shovels, cars, drills, and other equipment and machinery; small tools for the shops; iron, steel, builders' hardware, plumbing materials, furniture, marine supplies, track tools, paints and oils, foundry supplies, corral equipment and supplies, stationery and printed forms, and a great number of other articles that are constantly required by all branches of the work.

We aim to limit our supply of standard material to approximately six months' requirements, this by reason of the length of time it requires from date of requisitions, to advertise, award, ship, and receive the material on the Isthmus, although many articles of standard supplies, such as oil, waste, lumber, roofing, track tools, nails, cements, etc., are "turned over" in from thirty to ninety days.

Every department on the Isthmus is dependent upon us for their supplies, and every effort is made to anticipate the wants of each division so that requisitions can be filled promptly and fully. We endeavor to carry at our substores the class of material and supplies needed by the various departments in that vicinity, and protect our stock by frequent purchase requisitions on the States, based either on estimates furnished us by the different divisions as to their requirements or from data obtained from our various storekeepers regarding their stock on hand and the consumption of material as shown by their stock records.

The material situation is canvassed continually with all departments with a view to keeping in touch with their requirements.

For convenience, in placing stock requisitions storekeepers also keep a book record of stock: inventories are made of the principal items each month and supplies are ordered on basis of the consumption for certain standard articles from month to month. These stock books have columns showing the quantities on hand at the beginning of the month, the quantities ordered each month, and the quantities received during the month.

By reason of this record the storekeepers can keep a line on the consumption of various materials from month to month, and their stock orders are based upon the consumption as shown on their stock books.

Requisitions for new material.

For all material and supplies needed that are not on hand or obtainable under existing contracts requisitions are submitted through this division to the General Purchasing Officer.

Purchase requisitions are made on Forms 28 and 28 A—samples attached, **Exhibit A**—and are made either by the division requiring the material or in this office from information obtained by means of local requisitions, or from estimates of the requirements of certain divisions that are submitted from time to time.

A separate series of numbers is kept for different divisions, as follows: Engineering and Construction, carrying the suffix "A;" Sanitary Department, with the suffix "B;" Material and Supplies, for stock, corral supplies, and

printing supplies and stationery, with the suffix "C;" Civil Administration, with the suffix "D;" Accounting Department and Disbursing Officer, with the suffix "E."

All requisitions run in numbers consecutively from No. 1 from the commencement of each fiscal year, and copies of all requisitions made are filed in this office.

When a requisition asking for the purchase of any material is received it is first checked to ascertain whether the materials, or a portion of them, can not be supplied from stock on hand or on order, and if such is found to be the case the originating official is notified that these items have been canceled on his purchase requisition and will be supplied from stock.

All purchase requisitions bear complete information as to quantities wanted, on hand and on order, with specifications, blueprints, or sketches where required, the marks to be placed on the packages and the date that delivery is desired. All items are described fully so that the Purchasing Officer can intelligently advertise for bids.

When any material has been awarded to the successful bidder the General Purchasing Officer sends two copies of the award to this office for information, and one of the copies forwarded to this office is in turn transmitted to the officer originating the requisition; we also receive from Washington copies of all correspondence regarding the delivery of supplies, and in this way our requisition files show the complete status of any requisition.

The award shows the price, to whom awarded, date of delivery, and all essential information to enable this office to keep a check on the delivery and to take up with the General Purchasing Officer when material is not received by the time specified on the award.

Receipt, inspection, and disposition of supplies.

Material is received from the United States either at Colon, Cristobal, or La Boca.

At Cristobal lumber, piling, ties, and rail are unloaded at dock 14, from which place the material is loaded on cars direct from the dock or from the ship and shipped out to fill orders on hand, or to be placed in stock at points along the line. Lumber, ties, and rail are usually shipped out immediately on unfilled orders, while piling is stored on the ground at dock 14 until required. Any lumber in excess of the quantities required to fill outstanding orders is shipped to Culebra for storage.

Locomotives, cars, and other heavy machinery and equipment are unloaded either at Colon or at docks 11 and 14, Cristobal, and shipped out direct to the points indicated to us by the official originating the requisition.

All freight carried on the Panama Railroad Steamship Line's ships is unloaded at dock 11, Cristobal, and is shipped out either direct to the consignee or sent to Mount Hope for disposition.

The only cargoes received at La Boca are lumber shipments from the territory contiguous to Puget Sound, and are either shipped out direct to fill orders or else stored at La Boca or Culebra lumber yards.

With each shipment we receive copies of the dealers' invoices, with packing lists and bills of lading, and as all packages are marked with the requisition number and name of the party and division ordering, and the invoices and bills of lading bear the same marks, we are able to tell immediately upon receiving the ship's papers what cargo she carries and to make prompt disposition. For all material ordered by divisions other than the Division of Material and Supplies we aim, where the bulk of the freight will warrant, to have shipments made direct to the consignee, to save delays and rehandling at Mount Hope.

All other material, including small consignments for the different divisions and supplies ordered for stock purposes, are sent to the Mount Hope store for inspection, storage, and disposition.

For the material or equipment—such as cars, locomotives, shovels, and machinery—shipped direct from the dock to the originating officer two copies of an inspection call are forwarded to the head of that department with request that the material be inspected.

For all material sent to Mount Hope store the inspection calls are forwarded to the storekeeper at that place.

Inspection on the Isthmus is principally for the purpose of ascertaining damages and shortages, as the inspection in the United States is supposed to cover the relation of the material to the specifications. If, however, material is received that does not clearly comply with the specifications, even though it

has passed inspection in the United States, the material is held and the matter brought to the attention of the General Purchasing Officer for his consideration.

No dealers' invoices are passed without a signed inspection call, or certificate of inspection, from the interested division. Inspections are made at the earliest possible moment, so that there will be no delay in passing the invoice for voucher.

This division has an inspector at Mount Hope who passes on all material received at that place, while the inspection at other points is done by the head of the department receiving the material, or some one authorized by him to perform that function.

I inclose sample copy of the inspection call, Exhibit B.

Care and custody of material and supplies.

After the material for stock has been inspected it is placed in its proper place in the storehouse and drawn upon as required to fill orders.

The storehouse is subdivided into sections, each containing a certain class of material, and the goods are placed in their respective sections as soon as they are unloaded and inspected. The iron and steel are placed in racks, the paints and oils in the oil house, material that is affected by the weather is placed under shelter, lumber assorted and piled in neat piles capable of shedding water, and, in fact, all classes of supplies are stored safely, conveniently, and systematically.

The issue of material and supplies is made by competent storehouse men, under the immediate supervision of the storekeeper. Our policy is to educate material men for the purpose, who become familiar with the names and descriptions of material and supplies and appreciate the necessity of accuracy and care. The storehouses and surroundings are kept clean and free from inflammable materials, fire protection is provided at all places, and watchmen are on duty to prevent loss by theft.

Issue and transfer of material and supplies.

Material and supplies are issued from each of the storehouses to supply the needs of the territory contiguous to that store.

No material is issued except upon the receipt of properly approved requisitions for which purpose three forms are used:

1. All supplies issued direct from a storehouse to the mechanical department at that point are delivered upon the receipt of a foreman's order. These orders are consolidated daily into one requisition which, after being approved by the Master Mechanic and the Superintendent of Motive Power, is forwarded to this office. Sample attached, Exhibit C.

2. All supplies that require transshipment from one storehouse to another place in the Canal Zone are ordered on the combined requisition and shipment order, Form No. 1, M. & S., sample attached, Exhibit D. This form is used by all divisions except the Mechanical Division; and where the material is urgently required and can be supplied from a local storehouse the requisition is sent direct to the local storehouse for immediate action, while a copy is sent to this office for our files. When the local storekeeper has made shipment or delivery of the material called for he forwards the accomplished requisition to this office, showing, in the spaces provided, the details of the shipment. Ordinarily, however, these requisitions are forwarded direct to this office and from here placed with the store that has the particular material in stock. If there is no stock on hand at any storehouse to fill the requisition, and same can not be obtained from any other division, provision is made to obtain the material from the United States by means of a purchase requisition, and the originating official notified of the action taken. The use of this combined requisition and shipping form saves a great deal of the clerical work that was done before this form was adopted, as the "shipment order" was then written on a separate form.

3. Requisitions for stationery and printing are made on Form 2, M. & S., sample attached, Exhibit E, and are forwarded to the stationer at Ancon for action.

For material shipped direct from the dock to the consignee, a store invoice is forwarded immediately to the head of the department for acceptance, and the receipted invoice used as an expenditure voucher. Sample of store invoice form is attached, Exhibit F.

For material delivered direct from the storehouse to the Mechanical Department, the receipted local requisition, Exhibit C, is used as an expenditure voucher, while for material shipped from any of the stores to parties along the line store invoices are made at once and the receipted store invoice used as a voucher.

For material shipped by the stationer and printer, store invoices are made direct by the stationer and upon acceptance are forwarded to this office as expenditure vouchers.

All material shipped from stock at Mount Hope is invoiced direct from Mount Hope, and the accomplished invoices are forwarded to this office as expenditure vouchers, and all other material or supplies delivered from any of our storehouses or lumber yards are invoiced direct from this office, upon receipt of shipment papers from the storekeepers, and the accomplished invoices are used as expenditure vouchers.

These receipted local requisitions and store invoices are used to support our expenditure accounts, which are sent each month to the local auditor.

Any material that is required by a substore for stock is ordered in the regular manner by the storekeeper, on the requisition form (M. & S. 1), Exhibit D, but the issue is covered by a transfer invoice (see Exhibit H), and this invoice is not used as an expenditure voucher, but simply as a receipt for material shipped.

For each shipment a shipment notice—sample attached, Exhibit G—is sent to the consignee, so as to notify them when to expect shipment, and they show details of the material shipped.

When any division has material that can be spared for other purposes, and it is desired for stock, a requisition is made by this division in the regular manner and the stock transferred to this division on the prescribed form—transfer invoice, Form A 172 B, Exhibit H.

For material that is loaned to another division but still remains in my custody—as, for instance, live stock and corral equipment—a memorandum receipt, Form A 177—sample attached, Exhibit I—is obtained from the division borrowing the material, and this receipt is filed as evidence of the disposition of the material.

Manufacturing orders.

For material that can be manufactured on the Isthmus to better advantage than by purchase in the States, or the urgency of the case precludes the delay incident to purchase in the States, or for repair work to be done, a manufacturing order, Form M. & S. 75-B—sample attached, Exhibit J—is issued on the department that can best perform the work. In case the material is made for stock purposes and goes into any one of our storehouses for issue, the cost of the entire order is invoiced against this division on the transfer invoice, Form A 172 b. In case of repair work the cost is invoiced direct against the division requesting the repairs made. Material manufactured for stock is taken into my accounts and issued the same as material purchased.

Accounting for material and supplies issued.

This division keeps both a physical and financial record of material received and issued or transferred.

We are debited with all materials purchased from the United States for all departments, for all material purchased locally, and for all material manufactured for stock. Purchase invoices are accepted by this division as soon as we receive the signed inspection call and are numbered consecutively, commencing with No. 1, a new series being commenced at the beginning of each fiscal year.

The purchase invoices accepted by each sailing date are listed on the form abstract of certified bills, A 198—sample attached, Exhibit K—and forwarded with the abstract to the Disbursing Officer at Washington, through the local auditor's office on the Isthmus.

The amounts of the certified bills are debited to my account.

Material purchased locally is likewise debited to this division.

Material manufactured on the Isthmus is charged to this division on transfer invoice and debited to this division when the receipted transfer invoice is forwarded to the auditor.

Our account receives credit for material issued to other departments.

For material sold to outside parties or individuals and for damaged or destroyed material dropped by authority of the Board of Survey and Appraisal we likewise receive credit.

For all material received a stock record is kept on stock cards—sample attached, Exhibit L—at the storehouse, and on stock sheets, Form 34 MD—sample attached, Exhibit L—in our main office. These stock cards and stock sheets show full description of the material, the quantity received, from whom received, and the price.

Any issues are credited to the stock cards and stock sheets, the local storekeepers making the first record on the issue of their stock cards and then forwarding the papers to this office, where record is also made.

This part of the work is carefully watched and records at outside points inspected periodically to see that they are carefully and accurately kept.

Sales to outside parties are credited in the same manner on the stock records; these sales consist principally of material or supplies sold to the different municipalities in the Zone and to the Panama Railroad.

Material disposed of by action of the Board of Survey and Appraisal is dropped upon receipt of proper authority from the board and a copy of the proceedings sent to the local auditor to support the credit so taken.

All receipted local requisitions and all accomplished store invoices are abstracted at the close of each month in the main office and forwarded to the local auditor. The abstract shows the store invoice or local requisition number, against whom charged, and the specific account number for which the material was used. Sample of abstract, Form A 173 Rev., attached, Exhibit M.

Inventory and property returns.

A full and complete inventory of all unexpended material in the custody of this division is taken at the close of every fiscal year. This does not include any French stock that has not been charged to this division.

Inventories are carefully taken as to description and quantities and the completed inventory forwarded to the local auditor. Inventory forms, A 24 Rev. and A 199, samples attached, Exhibit N.

Inventory quantities are compared with the stock balances at all stores as shown by the stock cards with a view to discovering discrepancies and the reasons therefor.

Property returns for all unexpended property in my charge are rendered at the close of each quarter. These returns are forwarded to the local auditor for check. I attach sample forms for the property returns, Forms A 210 A and A 210 D, Exhibit O.

No property that has become worthless for any cause, or that has become worn out through service, or that has been damaged through no fault of the responsible or accountable officer is disposed of without authority from the Board of Survey and Appraisal. I attach samples of survey blanks, Forms A 178 A and A 179, Exhibit P.

Sale of scrap and unusable materials.

Sales are made of certain scrap and unusable materials after condemnation, appraisal, and advertisement, in the prescribed manner. A large quantity of old French material that was absolutely worthless for any other use by the Commission has been scrapped and used in our cast-iron and brass foundries at Gorgona, while a large amount of old French material, likewise worthless, but unfit for use in the foundries, has been disposed of by sale to outside parties.

When any offer is received for such material the application is referred to the Board of Survey and Appraisal, and if after investigation it is determined that the material can not be used by the Commission in connection with the work, it is condemned, appraised, a minimum price fixed, and the necessary authority is given to me to dispose of it to the highest bidder after due advertisement.

We have by sale to various parties disposed of nearly 10,000 net tons of old scrap iron, together with certain old boilers, rail and marine equipment.

We now furnish scrap iron to the Panama Railroad for ballast for their northbound steamers, when the lack of sufficient commercial freight necessitates their carrying ballast. The ballast we have been and are now furnishing consists of old French car bodies, trucks, and parts of old machinery that has

been worn out or is of no value to the Commission except as scrap, crooked rails, and other similar material.

This ballast is sold in New York to the highest bidder, and the proceeds are turned over to the Isthmian Canal Commission after the Panama Railroad deducts charges for transportation and handling on docks.

Unserviceable live stock is also sold after condemnation, appraisal, and due advertisement.

I inclose sample of bill, Form A 26, and advertising form, D. O. No. 305, Exhibit Q.

Storehouses and places of storage.

The following storehouses are under my jurisdiction: Panama Railroad stores at Cristobal shops and at Colon; Isthmian Canal Commission store at the dry dock, Cristobal; Isthmian Canal Commission general storehouse at Mount Hope; Isthmian Canal Commission at Gorgona; Isthmian Canal Commission store at Bas Obispo, and powder magazines; Isthmian Canal Commission store at Empire; Isthmian Canal Commission store at Culebra, and powder magazines; Isthmian Canal Commission store at Paraiso; Isthmian Canal Commission store at Ancon; Isthmian Canal Commission store at La Boca, and lumber yard; Isthmian Canal Commission stationery store and printing plant in administration building, Panama; Isthmian Canal Commission lumber yard, Culbera; Isthmian Canal Commission storage at dock 14, Cristobal, for piles, rails, and ties; besides certain old French buildings located at Cristobal, Gorgona, and other places along the line, where French material is located.

Each store supplies material within certain jurisdictions. The general store at Mount Hope furnishes all supplies to all substores. All departments on the Isthmus secure their supplies from either the general store or the substores.

The store at the dry dock, Cristobal, supplies the needs of the dry-dock shops.

The store at Gorgona supplies the district between Gatun and Gorgona and the shops at Gorgona.

Iron and brass castings are made at the foundries at Gorgona shops and these foundries supply the demand for all points on the Isthmus as well as the Panama Railroad.

Bas Obispo store supplies the needs of the Engineering Department at that point. This store draws its supply from Empire and is under the jurisdiction of the storekeeper at Empire.

Empire store supplies the district between Bas Obispo and Paraiso and attends to the wants of all departments included in this district. This store ranks next in importance to Mount Hope, as it has to furnish the north end of the cut with supplies for steam shovels, locomotives, cars, track material, repairs for drills, explosives for blasting, material and supplies for the air-compressor plants and pipe fittings for air lines, material and supplies for Las Casadas car repairs and roundhouse use, supplies for the Master Builder, Municipal Engineer, Sanitary Department, the land transportation, etc.

Culebra store supplies the immediate needs of all departments at Culebra; this store is under the jurisdiction of the storekeeper at Empire and gets its supply from Empire store.

Culebra lumber yard supplies the lumber demands, and is used for a storage yard for all lumber that can not be disposed of direct from the vessel. It supplies the rough material for the Lirio planing mill and is under the jurisdiction of the storekeeper at Empire.

Paraiso store supplies the needs at the south end of the cut and the material for the shops at that place.

Ancon store supplies the needs of the corral at Ancon and for other divisions in that locality. The store carries the bulk of stock for repairs to wagons, carts, carriages, and other vehicles, harness and other corral equipment.

La Boca store supplies the marine shops at La Boca and carries a large stock of lumber for use by all departments on the Isthmus.

The stationery and printing plant in the administration building in Panama supplies all the stationery and printing required on the Isthmus. A complete stock of standard stationery is carried at all times, as well as special supplies for the Engineering Department. The printing office supplies the demand for all printed forms required on the Isthmus, as well as special blank books, meal

tickets, etc. A large part of the printing required by the Panama Railroad is done at this plant. There is a stamp factory in connection with the printing office, where rubber stamps are made and furnished as required.

At dock 14, Cristobal, is carried a stock of piles, ties, and rail. This material represents only that part of a vessel's cargo that can not be immediately shipped from the dock as unloaded, but stored for convenience at this point until required. This material, when required, is loaded economically with the cantilever traveling crane installed at this dock.

The magazines at Bas Obispo and Culebra are used for storage of explosives, and are situated a safe distance from these towns and in charge day and night of watchmen employed by this division.

Exclusive of the above places of storage, there are a number of old French storehouses at different points that serve for storage of a miscellaneous lot of old French equipment and supplies that have been on hand since the time of the French occupation and control. These stores have been inspected and most of the material that was considered as of value to the Commission removed and shipped to our storehouses. Of the material now remaining in these old buildings, the larger part consists of old machinery of all kinds, repair parts for same, and a great quantity of small supplies, the most of which can not be used and eventually will be scrapped and sold. As rapidly as possible the Board of Survey and Appraisal is examining and disposing of this old French material.

Since the Commission took over the canal work there has been used and sold from the old French stock material in value amounting to \$706,767.35. (This does not include all of the old French floating equipment or the other French machinery and equipment in use, but simply covers the value of the smaller supplies, such as bar iron, steel, bolts, rivets, tools, small stationary engines and boilers, and similar materials.) Of this about \$150,000 represents scrap iron and material, sold to outside concerns, which could not be used by the Commission. There is an immense amount of old French material and equipment still on hand, some of which will be disposed of as scrap for use in the foundries, some for use in the canal construction, and the balance sold from time to time until all is disposed of.

At the storehouses proper precautions are taken for protection against fire and theft. Watchmen are stationed at all the storehouses for night duty and fire extinguishers, water barrels, hydrants, and hose installed at the principal storehouses. Daily reports are required and received from the watchmen and storekeepers, showing the work that has been accomplished at each place daily, and other matters of interest to me in connection with the work.

LOCAL PURCHASE ON THE ISTHMUS.

The next heading that suggests itself is local purchase on the Isthmus, which I have subdivided into the following subheads: Local purchases, why and when made; method of advertising and making awards; contracts.

Local purchases, why and when made.

Local purchases are made for certain materials and supplies which, as a rule, are not carried in stock, where it is necessary to secure an immediate supply, owing to the urgency of certain work. Occasions arise where a certain work is handicapped or delayed for the want of material the urgency of which will not allow of the regular routine of a purchase in the United States, making it imperative that the material be purchased in the local markets.

In the earlier days there was a large amount of material so purchased, but at the present time there is but very little demand for such purchases, owing to the complete stock carried at the different storehouses.

No local purchases are made from Isthmian merchants until it is first ascertained that the material can not be procured from the Panama Railroad stores or their commissary.

A good portion of the local purchases consists of subsistence supplies for engineering parties, branch of Labor and Quarters, and for the hospitals.

Subsistence supplies for the hospitals consist principally of fresh meats, vegetables and fruits, milk, eggs, and fish that are supplied under contract by Isthmian merchants.

Estimates for the requirements for the hospitals are furnished us each six months by the chief sanitary officer, and contracts are awarded for this period.

Method of advertising and making awards.

For material that is awarded under contract regular advertisements are inserted in the local papers, specifying the article required and the necessary information for intelligent bidding by competitors. A definite date is set for the receiving of bids and the award is made to the lowest responsible bidder. Copy of award for local-purchase supplies, Form M. & S. 79, is attached, Exhibit R.

For small quantities of material that can not be procured from the Panama Railroad commissaries no advertisement is inserted in the newspapers, but a proposal blank is sent to the principal local merchants, and sale is awarded to the lowest bidder as determined in the above manner. Sample of proposal for furnishing supplies, Form 32 M. & S., is attached, Exhibit S.

Contracts are made with responsible bidders for furnishing subsistence supplies, for firewood and charcoal, and for materials that are furnished in large quantities. These contracts follow in wording practically the same form as those made by the General Purchasing Officer in the United States.

Local purchases from the Panama Railroad and commissaries are covered by a regular award in the same manner as that bought from outside firms.

Bills are rendered for local purchases and for any material that is taken into stock and issued by this division; vouchers are made in this office on the prescribed forms and are forwarded to the Disbursing Officer for payment.

For local purchases for the Department of Labor, Quarters, and Subsistence the vouchers are made by that department, and for purchases made for the hospitals the vouchers are made by the Sanitary Department. No voucher is paid until a certificate of inspection is given by the party receiving the material, and the same safeguards are adopted by the Disbursing Officer on the Isthmus as are used by the Disbursing Officer in the United States. Copies of the advertisement and award, also copy of the contracts, where made, accompany the voucher.

I inclose samples of the public bill forms which are used both for purchases and for services. The "service" voucher is used where services have been performed by outside parties in behalf of the Commission, and the other form is used for the settlement of direct purchases of material and supplies where the element of service does not enter. See Exhibit T for these forms M. & S. 74 and D. & O. 309.

I also inclose sample of form used in settlement for advertising—D. & O. 304, Exhibit U.

• LOCAL TRANSPORTATION.

The next heading is local transportation.

The local transportation system was placed under the jurisdiction of this division by a resolution of the Commission adopted August 2, 1905, as follows:

"5. *Resolved*, That all horses and mules, together with vehicles and equipment therefor, of the Canal Commission on the Isthmus shall be in charge of the Chief of the Bureau of Supplies; that requests for the assignment of animals and vehicles shall be made upon the Chief of the Bureau of Supplies by the person requiring or entitled to such assignment, approved by the head of the Department of Government and Sanitation or the Chief Engineer or by direction of either of those officials; that where practicable animals shall be cared for at corrals and stables in charge of the Chief of the Bureau of Supplies, and where it is inconvenient to care for them at such corrals and stables an allowance of forage shall be furnished periodically by the Chief of the Bureau of Supplies to the employees to whom the animals are assigned; that so far as the requirements of the service and the space of corrals and stables will permit, private horses owned by employees of the Canal Commission to be used by them for private purposes may be cared for at such corrals and stables, the actual cost of care and feeding, plus 10 per cent, to be paid by the employees owning the animals; and where animals owned privately by employees are used in the discharge of official duties they may be cared for and foraged at the expense of the Commission in the same manner as if they were the property of the Commission."

This resolution is practically in force now in its entirety, with the exception that the equipments for the Police and Fire departments are under the jurisdiction of the heads of those two departments, respectively.

All other local transportation is under my jurisdiction, and no assignment of animals or vehicles is made except on properly approved requisitions.

All the nonexpendable property belonging to the system is carried on my property returns, and memorandum receipts are taken for any property that is assigned to the use of another division.

Private animals owned by Canal employees and used by them for private purposes are cared for at our corrals, so far as the accommodation will admit, and regular bills rendered against the owners monthly for the cost of forage and stable attention.

Private animals owned by employees and used by them in the discharge of their official duties are cared for and foraged at the Government's expense, upon properly approved requisitions being received covering same.

Corrals are located at Cristobal, Gatun, Tabernilla, Gorgona, Bas Obispo, Las Cascadas, Empire, Culebra, Paraiso, Pedro Miguel, Corozal, Ancón and La Boca.

The corrals accommodate at the present time 635 horses and mules, of which 574 are the property of this division, 22 belong to the Police Department, 27 to private parties (stabled at the owners' expense), 10 belonging to the Panama Railroad, and 2 to private owners stabled at the expense of the Government.

The corrals are in charge of competent stablemen and are kept in a clean and sanitary condition.

The entire local transportation system is in charge of a superintendent of local transportation, who exercises supervisory jurisdiction over the entire Isthmus and reports to me.

The health of the animals is looked after by an experienced veterinary surgeon, who makes a weekly inspection of all corrals and animals.

All animals are branded; also numbered with aluminum tags in the ear. Vehicles are marked so as to determine ownership to the Government, and the same care taken of forage and corral supplies as is taken of any other stock in my possession. Complete reports are received daily from each corral on Form 23, sample attached, Exhibit V.

STATIONERY AND PRINTING.

As indicated by the heading, this branch of this division supplies all the stationery and printing required on the Isthmus.

The stationery room and the printing plant are located in the administration building at Panama.

In the stationery stock is found a supply of the various small items of stationery that are in daily use, such as pens, pencils, ink, blotters, erasers, rubber bands, mucilage, pen holders and racks, printed forms, blank books, rulers, ink wells, typewriter oils, brushes, ribbons, etc.; pins; paper fasteners, staples, clips, and all other articles properly coming under the above heading.

The printing plant consists of an up-to-date and well-equipped printing establishment, capable of turning out the printed work required for forms, letter heads, and other stationery; also binding books, etc. The Canal Record is printed here. We also operate a stamp factory at this place.

No stationery is issued except on the receipt of a regularly approved requisition, and the stationery stock is accounted for and issued in exactly the same manner as materials at any of the storehouses.

No printing is done except on printing manufacturing orders, the same as would be issued to another division in case we desired material manufactured. Sample of request for printing, Form M. & S. 75, is attached as Exhibit W.

REPAIRS OF TYPEWRITERS.

The repair of all typewriters and adding machines is under the supervision of this division; and we operate a complete repair shop at Cristobal, where machines are overhauled and put into serviceable condition.

The shop is in charge of two repair men. One man makes trips to the various offices on the Isthmus at stated intervals, and machines that can be repaired on the spot are given attention at once, while those needing a general overhauling are sent, by messenger, to Cristobal.

The cost of the labor and material entering into the repair of a machine is charged against the division owning same.

BOARD OF SURVEY AND APPRAISAL.

The only connection this division has with the Board of Survey and Appraisal is in obtaining relief from property lost, destroyed, or rendered unserviceable through no fault or neglect of any employee of this division and to obtain authority for the disposition of all old French material, except small stock that can be used to equal advantage with new stock, such as bar iron, bolts, sheet steel, and small supplies.

All equipment, such as cars, boilers, engines, tools, and machines, and parts of same, when required for use by any division, are condemned, appraised, and disposed of by action of the Board of Survey and Appraisal.

All old French material to be disposed of by sale, also, has to be condemned by this board.

In fact, the disposition of all the old French equipment and stock of materials is in the hands of the Board of Survey and Appraisal; and its authority must be obtained before any of this class of material can be disposed of for any purpose.

W. G. TUBBY,

Chief, Division of Material and Supplies.

Explosives purchased since the inception of the canal work.

Material.	Quantities.	Values.
Dynamite, 30 per cent. pounds.	20,000	\$1,950.00
Dynamite, 45 per cent. do.	3,267,000	349,201.50
Dynamite, 60 per cent. do.	1,550,000	192,160.00
Dynamite, 75 per cent. do.	300,000	42,375.00
Unclassified. do.	16,100	3,191.00
	5,153,100	588,877.50
Powder, blasting. do.	597,500	45,212.50
Powder, giant No. 0 do.	15,000	2,850.00
Powder, giant No. 1 do.	32,500	6,175.00
Powder, giant No. 2 do.	22,500	3,100.00
	667,500	57,337.50
Caps, blasting.	399,000	2,129.75
Exploders, electric	444,500	25,581.86
Fuse feet.	1,413,000	5,314.82
40-50 hole batteries	103	2,964.16
20-30 hole batteries	8	132.25
No. 24 copper wire pounds.	1,200	387.00
No. 12 copper wire feet.	20,000	140.00
Insulated tape do.	54,000	189.20
Lead wire do.	1,000	7.50
		36,846.54
Grand total.		683,061.54

Statement of French scrap sold and issued from August 1, 1905, to October 31, 1907.

	Weight.	Value.
	Pounds.	
Issued to the foundries:		
Cast-iron scrap.	5,300,153	\$21,476.63
Brass scrap.	255,370	22,983.30
Sold in the United States:		
Cast-iron scrap.	12,031,080	49,688.36
Wrought-iron scrap.	405,850	2,082.01
Riveted steel.	1,577,000	6,513.01
Sold to the Panama Railroad:		
French scrap of all kinds.	7,200,000	22,278.59
Total.	26,766,453	125,021.90

236 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Statement of all piles received prior to November 1, 1907.

Untreated piles.			Treated piles.		
Length.	Number.	Linear feet.	Length.	Number.	Linear feet.
15 feet.....	30	450	24 feet.....	791	18,984
20 feet.....	120	2,400	28 feet.....	551	15,428
25 feet.....	1,225	30,625	30 feet.....	147	4,410
28 feet.....	180	4,680	35 feet.....	190	6,650
30 feet.....	3,405	102,180	36 feet.....	573	20,628
35 feet.....	1,595	55,825	38 feet.....	462	18,696
40 feet.....	4,216	168,560	32 feet.....	100	3,200
45 feet.....	1,607	72,315	40 feet.....	432	18,080
50 feet.....	3,086	154,300	45 feet.....	1,867	84,015
55 feet.....	1,580	87,450	50 feet.....	985	49,250
60 feet.....	1,994	119,640	55 feet.....	1,157	63,635
65 feet.....	353	22,945	60 feet.....	1,320	79,200
70 feet.....	673	47,110	65 feet.....	382	24,890
75 feet.....	386	28,950	70 feet.....	1,083	75,810
80 feet.....	334	26,720	75 feet.....	193	14,475
			80 feet.....	275	22,000
	20,795	924,180		10,531	519,291

Value of untreated piles..... \$185,597.84

Value of treated piles..... 206,442.74

Total value (1,443,441 linear feet)..... 392,040.58

STATEMENT OF MATERIAL PURCHASED FOR ACCOUNT OF ISTHMIAN CANAL COMMISSION FROM INCEPTION OF WORK, 1904, TO NOVEMBER 12, 1907.

Cement.

1904, 2,600 barrels.....	\$4,490.00
1905, 39,500 barrels.....	63,360.00
1906, 47,350 barrels.....	87,967.00
1907, 53,000 barrels.....	102,045.00
	257,862.00

Furniture for married quarters.

1904.....	967.50
1905.....	24,932.06
1906.....	33,702.14
1907.....	55,762.82
	115,364.52

Furniture for bachelor quarters.

1904.....	224.02
1905.....	53,311.51
1906.....	35,023.87
1907.....	20,441.80
	109,001.20

Furniture for hospitals.

1904.....	9,655.11
1905.....	46,458.75
1906.....	1,307.90
1907.....	4,838.50
	62,260.26

Wire screening.

1904, 10,000 square yards.....	5,200.00
1905, 85,160 square yards.....	32,110.00
1906, 367,685 square yards.....	151,167.00
1907, 110,000 square yards.....	42,500.00
	230,977.00

Forage and corral supplies, including wagons, carts, and other vehicles.

1904	-----	\$8, 150. 00
1905	-----	112, 332. 89
1906	-----	97, 211. 14
1907	-----	88, 820. 27
		<hr/>
		304, 514. 30

Rolling stock and machinery (locomotives, cranes, dump, flat, motor, hand, and push cars, steam shovels, plows, unloaders, spreaders, etc.).

1904	-----	585, 150. 00
1905	-----	3, 142, 874. 00
1906	-----	1, 989, 606. 00
1907	-----	1, 127, 332. 00
		<hr/>
		6, 844, 962. 00

Floating equipment (tugboats, steam launches, steel barges, dredges, rowboats, etc.).

1904	-----	1, 657. 39
1905	-----	85, 976. 00
1906	-----	1, 423, 457. 88
1907	-----	422, 165. 68
		<hr/>
		1, 933, 256. 95

Brick (paving, common, fire, etc.).

1904	-----	
1905	-----	190, 597. 47
1906	-----	4, 276. 10
1907	-----	6, 838. 00
		<hr/>
		201, 711. 57

Corrugated iron roofing.

1904	-----	5, 689. 70
1905	-----	67, 577. 38
1906	-----	92, 708. 75
1907	-----	76, 309. 23
		<hr/>
		242, 285. 06

Blasting material.

1904	-----	92, 727. 71
1905	-----	67, 577. 38
1906	-----	171, 301. 06
1907	-----	385, 065. 22
		<hr/>
		693, 468. 61

Laborers' cots, berths, tents, etc.

1904	-----	500. 10
1905	-----	84, 878. 99
1906	-----	81, 809. 00
1907	-----	17, 243. 00
		<hr/>
		184, 440. 09

Iron (pig, round, flat, square, boiler, sheet, swedish, etc.).

1904	-----	
1905	-----	38, 326. 20
1906	-----	17, 354. 92
1907	-----	40, 610. 92
		<hr/>
		96, 292. 04

238 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Oils (Unseed, cylinder, engine, kerosene, petrolcum, mosquito, car, valve, lubricating, etc.).

1904	-----	\$9,500.08
1905	-----	32,519.60
1906	-----	26,578.50
1907	-----	138,300.16
		<hr/>
		206,848.34

Larger items of machinery (lathes, drills, planers, steam hammers, engines, crushers, planing mill, electric plant, etc.).

1904	-----	17,086.39
1905	-----	133,171.59
1906	-----	33,118.17
1907	-----	858,520.43
		<hr/>
		1,041,896.58

Live stock (from 1904 to 1907, inclusive).

Mules	-----	\$6,184.00
Horses	-----	23,650.00
		<hr/>
		109,834.00

Supplemental statement of equipment on order and received since September 21, 1907.

6 cars, track laying	-----	\$600.00
2 launches	-----	2,874.00
4 steam dump barges	-----	100,000.00
6 cargo lighters	-----	123,772.94
12 boats, row	-----	3,300.00
1 tug	-----	58,000.00
5 drills, rock	-----	3,264.75
		<hr/>
Total	-----	291,811.69

Of the above, only the last two items have been received.

W. G. TUBBY,
Chief, Division of Material and Supplies.

Cristobal, September 5, 1907.

Mr. SYDNEY B. WILLIAMSON,
Chairman Board of Survey, Culebra, C. Z.

SIR: I beg to request that the Board of Survey and Appraisal examine and pass upon all the cast-iron French material at Bohio, Frijoles, Tabernilla, and San Pablo, condemning all that will not be required for use in the construction of the canal, so that it can be shipped to Gorgona for use in the foundry.

There is considerable material belonging to dredges located at these places, and I would suggest that some one familiar with dredge material accompany the Board of Survey to pick out any material which it might be advisable to keep.

Yours, truly,

W. G. TUBBY,
Chief, Division of Material and Supplies.

OFFICE CHAIRMAN BOARD OF SURVEY AND APPRAISAL,
La Boca, Canal Zone, October 21, 1907.
(Case No. 530.)

Mr. W. G. TUBBY,
Chief of the Division of Material and Supplies,
Cristobal, Canal Zone.

SIR: With reference to your favor of September 5, requesting survey and appraisal on French material at Bohio, Frijoles, Tabernilla, and San Pablo, I beg to hand you herewith copies of report of Major Jadwin, chairman of committee to examine this material.

He indicates the disposition to be made, and I see no reason why you might not forward this material as indicated in the report. The value at which it will be invoiced will be fixed at the next meeting of the board of survey and appraisal.

Yours, very truly,

S. B. WILLIAMSON, *Chairman.*

ISTHMIAN CANAL COMMISSION,
DEPARTMENT OF EXCAVATION AND DREDGING,
CHARGES DIVISION,
Gorgona, Canal Zone, October 11, 1907

Mr. S. B. WILLIAMSON,
*Chairman, Board of Survey and Appraisal,
La Boca, Canal Zone.*

SIR: Referring to case No. 530, old French material located in the vicinity of Bohio, Frijoles, Tabernilla, and San Pablo, the committee appointed to inspect this material by the chairman of the Board of Survey and Appraisal beg to submit the following report:

All material at above-mentioned places was inspected and marks placed on each piece indicating disposition recommended, whether to be shipped to La Boca Division at La Boca, the Chagres Division at San Pablo, Mechanical Division at Gorgona, Mount Hope stores, or as scrap or scrap ballast.

Lists indicating location of material and disposition recommended are forwarded herewith. An asterisk opposite an item indicates that immediate shipment is desired.

Some old buckets are located at Calmeto which might be used for coal buckets. It is suggested that Mr. Tubby be advised of this.

A stone crusher is located at Calmeto. It is suggested that Major Harding and Mr. Williamson be so informed.

All material on which shipment is recommended should be removed in the near future to prevent further pilfering and destruction, except as to a few items too far from the railroad or river to justify extra outlay at present, when same may come out later in connection with construction work.

It is also recommended that the Material and Supplies Department be requested to look after all of the dredges along the line and to see that all hulls are kept free from water, and the winches, boilers, and engines of the large dredges be kept clean and free from corrosion. It is not desired that any special care be taken of machinery in the smaller hulls, as same will probably be scrapped.

In some cases valuable fittings, such as copper pipe, brass valves, etc., have been removed from the dredges in anything but a workmanlike manner, causing much damage to surrounding parts. These dredges may not be required for service for some time, but the hulls will almost certainly be used later on and should be cared for.

It is also probable that some of the boilers, winches, and parts of machinery will be used later in putting one or more additional dredges in commission and in replacing similar parts in dredges now in commission.

There are also two dredges, one at Bohio and one at San Pablo, which have not yet been assembled. These should be held for later disposition.

Mr. A. N. Magnell, from the office of the storekeeper at Gorgona, representing the Division of Material and Supplies, accompanied the committee and is familiar with the location of all materials. He understands in general the location and disposition desired of the listed material, as well as scrap or scrap ballast, no complete lists of which were kept.

A large quantity of Decauville material was also located and noted by Mr. Magnell.

Respectfully,

EDGAR JADWIN,
Division Engineer.
J. H. FLYNN, Jr.,
Chief Draughtsman.
J. A. MACFARLANE,
Superintendent Floating Equipment.

SHIPS WAYS, LA BOCA, CANAL ZONE, October 8, 1907.

List of material marked "La Boca."

At Bohio: 1 bell, 5 bars iron, 1 bundle spring steel, 2 small reversing engines, 1 double-acting duplex pump (French), 2 double-acting single pumps (French), about 30 torch lamps for dredges, 40 fire irons, 3 stacks for dredge, 5 plates

6 feet by 3 feet by $\frac{1}{2}$ inch, 10 steel bars $2\frac{1}{2}$ inches by $2\frac{1}{2}$ inches by 20 feet, dredge parts.

At San Pablo: 150 bucket bushings, 6 pulleys, 1 spur wheel, 300 feet $\frac{1}{2}$ -inch chain, 3 guides for engine, 3 smokestacks, 12 towing bitts, 2 jacks 1 vise, 400 feet 1-inch chain, 150 feet $\frac{1}{2}$ -inch chain, dredge parts.

At Tabernilla: 1 $3\frac{1}{2}$ -inch drum, 1 3-inch shaft, 2 5-inch crank shafts and pulleys, 1 4-inch by 8-inch double cylinder, 1 5-inch shaft and pinion wheel, 1 6-inch shaft and pulley, 4 4-inch shafts, 1 3-inch shaft.

At Chagresito: 10 gear wheels, 2 dredge-ladder pins, 1 condenser engine, 5 dredge winch frames, 1 internal part of 80-horsepower boiler.

List of material marked "San Pablo."

Bohio: One 12-ton French jack, two pot augurs, three augur rods, one scale (this should be sent to Gorgona, and shop order will be requested for repair of same), ten old French drill rods, fifteen 14-inch pipe, quantity of drill steel.

San Pablo: Three sheets of sheet iron $\frac{1}{8}$ inch thick, piece of 8-inch pipe under storehouse.

Chagresito: Two pieces 11-inch pipe, 25 feet long each; two pieces 12-inch pipe, 8 feet long each; ten pieces 11-inch cast-iron pipe, 4 feet long each; three pieces 20-inch wrought-iron pipe, 10 feet long each; small amount 8-inch pipe.

Barra Colorado: Two pieces 20-inch pipe, 20 feet long; six pieces 16-inch pipe, 10 feet long.

Caimeto: Three slice bars, five pieces 10-inch pipe 10 feet long, five switch stands, one anvil, one lathe, one shaper, two hand drill presses, one engine and boiler, 150 feet $\frac{1}{2}$ -inch chain, one 50-gallon tank.

BOHIO, September 24, 1907.

Outside: One 75-horsepower marine boiler, no breeching, marked "Mt. Hope;" small 6-horsepower portable engine and boiler to Mount Hope; quantity of scrap to Gorgona.

Items 2 and 3 located in and around small shop nearest railroad station.

Old storehouse: Belgian engine rods and crossheads marked "to Empire," cast-iron pulleys to Empire, crane crutches and bevel gears marked "to Empire," quantity of scrap to Gorgona, miscellaneous pulleys to Mount Hope, some letterpresses scrap to Mount Hope.

Near small building north from storehouse: Drill boiler marked "Mount Hope," traction engine and boiler to Mount Hope, small quantity of scrap.

Old engine house: Belgian engine not marked, a number of vertical boilers marked "Mount Hope," two small horizontal engines, Mount Hope, gears and other cast-iron parts (scrap), one 6 foot 6 inch by 6 foot 6 inch sheet-steel tank in excellent condition not marked. Department of m. p. and m. can probably use this tank, and will requisition same if needed.

ACROSS RIVER FROM TOWN AT BOHIO, September 28, 1907.

Two vertical boilers near old track about half a mile from river, marked Mount Hope; four Belgian locomotives in last building from river, not marked. One 10-kilometer Appleby track crane, not marked.

It is not considered advisable to do anything with this material unless a bridge over the river and a track from river to old shop be built to transport Decauville material, of which there is a quantity under cover.

On bank of river above sunken dredge, dredge same side of river as town: Four hoisting engines, single drum, complete with boilers and base, marked Mount Hope; four vertical boilers marked Mount Hope; quantity of winches and blocks marked Mount Hope. Small quantity of scrap.

Items 1 and 2 outside house, items 3 and 5 inside old storehouse.

In the rear of the storehouse which we went through on the 24th: Eight or ten 16 inches deep grooved sheaves, Mount Hope; five pieces $\frac{1}{2}$ -inch plate, Gorgona; quantity of drill rods underneath storehouse, marked Mount Hope.

SAN PABLO.

Quantity of material in the rear of Major Jadwin's store marked "scrap." Three square tanks marked "E. C. Harrington, Paraiso." These tanks are wanted for oil-storage purposes. Some cast-iron fittings and pipe marked Mount Hope. Large quantity of scrap marked; remainder of dredge material not marked. Probably may be used by Chagres Division. One traction engine marked Mount Hope, located on bank of canal cut.

TABERNILLA, *October 3, 1907.*

Following material marked for Mount Hope: One vertical return-fire tube boiler; three Galloway tube boilers; one 31-inch boiler breeching; one 31 inches by 13 feet stack; one 25½ inches by 14 feet stack; one 4-inch Globe valve; one 3¼-inch Globe valve; twenty-six lengths of 7½ inches by 5 inches I beam; four doors for excavator boiler breechings; one 50-inch cast-iron pulley; one 18 inches by 16 feet stack; one 16 inches by 13 feet stack; eighty-five 18-inch angle-iron flanges; three pairs driving wheels (re-mark to Empire store); one 30 inches by 6 feet locomotive boiler (cancel mark).

Marked to Gorgona store: one 20-inch spur gear; two hoisting engines (one 4 inches by 8 inches at Tabernilla and one 5 inches by 8 inches at San Pablo). Re-mark item 2 to Mount Hope.

Marked to Empire: Seventy-five 6-foot lengths of Belgian rail.

Six Belgian locomotives at Tabernilla and 1 at Barbacoas not marked, 5 French 4,000 kilogram cranes at San Pablo not marked, 1 Rogers locomotive at San Pablo not marked, 50 French dump cars at San Pablo not marked.

CHAGRESITO, *September 30, 1907.*

All material located alongside of railroad track at Chagresito: One vertical boiler marked Mount Hope, 1 horizontal marine type boiler complete, Mount Hope.

The following material was marked "Gorgona" for scrap: About 50 cast-iron rollers, 2 pumps, 2 belt wheels, 2 marine engine frames, 17 miscellaneous dredge parts all in one heap, 7 cast-iron pipe bends, 1 gear, 2 fly wheels, 2 centrifugal pumps, 2 double sheave blocks.

ACROSS RIVER AND DOWN STREAM FROM BOHIO, *Monday, October 7.*

Two Galloway tube boilers, 50 coal buckets, 2 4,000-kilogram Bon & Lustre-mot railroad cranes, 2 automobile boilers.

It is not recommended that anything be done with this lot, as the cost of removing it would probably exceed its value.

EVENING SESSION.

STATEMENTS OF MR. M. C. GAY, ACTING DISBURSING OFFICER; MR. WILLIAM M. WOOD, CHIEF CLERK, AND MR. ADOLPH FAURE, IN CHARGE OF PROPERTY ACCOUNTS.

DEPARTMENT OF DISBURSEMENTS.

The CHAIRMAN. Mr. Gay, what is your position in connection with the Disbursing Division?

Mr. GAY. I am the disbursing officer temporarily, during the absence of Mr. Williams.

The CHAIRMAN. You are the regular assistant, are you?

Mr. GAY. No, sir; I am not down here—only during his absence.

Colonel GOETHALS. His estimate is on page 55.

The CHAIRMAN. And also on page 9. Mr. Gay, you are familiar with the methods of accounts used in the Disbursing Office?

Mr. GAY. I am to a certain extent; yes, sir.

The CHAIRMAN. Are you familiar with the methods used by railroad companies?

Mr. GAY. Not at all. I never was with a railroad company. I was with the Government for ten years in Pittsburg before coming down here.

The CHAIRMAN. Are you familiar with the commercial methods?

Mr. GAY. I never was familiar with the commercial methods of accounting.

METHODS OF ACCOUNTING USED IN DISBURSING OFFICE.

The CHAIRMAN. What methods of accounting are used in the disbursing office?

Mr. GAY. They pay entirely in cash their labor force, and by checks for merchandise bills. Pay certificates are issued to employees and they are presented at the pay car, and the employees are identified by their brass checks, and they receive a check at that time.

The CHAIRMAN. When a man is appointed, say, a laborer, does he receive a certificate of appointment?

Mr. GAY. I think not. I think the laborers do not.

The CHAIRMAN. Does he receive anything except the brass check that is provided?

Mr. GAY. That is all.

The CHAIRMAN. Then on the books he is given a corresponding number?

Mr. GAY. Yes; he is given the corresponding number on that, and also on the pay roll—

The CHAIRMAN. Together with his name?

Mr. GAY. Together with his name.

The CHAIRMAN. There is no other record kept in the office by which he can be identified except the name and number on his check?

Mr. GAY. That is all.

The CHAIRMAN. Do you know whether or not the time inspectors have ever discovered any fraud practiced by this class of labor that is identified only in the way you mention?

Mr. GAY. They have, I believe, discovered some cases where they have transferred or sold their checks.

The CHAIRMAN. To what extent?

Mr. GAY. To a very small extent, considering the size of the force.

The CHAIRMAN. Did cases of that kind occur by reason of collusion between the timekeeper and the men?

Mr. GAY. I know of no case where the timekeeper was in collusion with the men. I have not heard of any.

The CHAIRMAN. How many men are employed as time inspectors?

Mr. GAY. I think there are about 48. Those are in the Examiner's office, not ours.

The CHAIRMAN. That belongs to the Examiner of Accounts?

Mr. GAY. Yes.

ATTEMPTED FRAUDS.

The CHAIRMAN. Can you give us the number of cases where men have disposed of their identification checks by sale or otherwise?

Mr. GAY. No; I could not.

The CHAIRMAN. Who would be likely to know?

Mr. GAY. Approximately, Mr. Wood would know.

Mr. WOOD. I think the Examiner is the one who could probably tell you all about that, as he had the cases in hand. But I think there were very few.

Mr. BURLESON. Approximately, how many?

Mr. WOOD. I could not say. They came from another department. The defrauding would come only in the case of a contract laborer who comes over here and is able to sell his check and enable

the man who got it to palm himself off at the rate which he got as a contract laborer.

Mr. BRICK. He would have to do some work if he got his pay?

Mr. WOOD. He could not possibly get paid without doing the equivalent of work.

Mr. MADDEN. You said something about the men on the pay roll coming to the pay car and presenting a check. Who gives him the check?

Mr. GAY. He is given a check by the timekeeper.

Mr. MADDEN. Who signs the check that he presents?

Mr. GAY. That is signed by himself and a witness.

Mr. MADDEN. This check is a printed form in which is stated the name of the man, the time he worked, and the amount that is due him—

The CHAIRMAN. And the number of his identification check?

Mr. GAY. Yes.

Mr. MADDEN. You say the timekeeper makes that check out?

Mr. GAY. Yes, sir.

Mr. MADDEN. And hands it to the laborer?

Mr. GAY. Yes, sir. Here is one right here [submitting same].

Mr. MADDEN. Are these checks transferable?

Mr. GAY. No, sir.

Mr. MADDEN. Suppose the man is not there when you come to pay him.

Mr. GAY. Then he comes to the office. The pay car goes out only on stated trips. He can call at two pay stations, at Cristobal and Panama, branch pay stations.

Mr. MADDEN. No money is left with the timekeeper to pay these checks?

Mr. GAY. No, sir.

Mr. MADDEN. Do you ever find these checks issued to men discharged, or men who have quit the service—issued as evidence of work performed by one man between one pay roll and another, and then when you come to pay the man you find he is not there, but that this check is in existence?

Mr. GAY. I do not know that I understand your question.

Mr. MADDEN. What I want to try to get at is this: Suppose you were at work for the Government down here and commenced on the 1st of November, and the pay car came around on the 1st of December, and you came and presented your check for the month of November. Then you left the service by the 15th of December and got away from this place, and one of these time checks was given to you when you went away. What would become of that time check?

Mr. GAY. Given for the time I worked?

Mr. MADDEN. For the time you did work.

Mr. GAY. I could get that at any time; a discharge check, either at the disbursing office at Empire, or at Panama, or at Cristobal.

Mr. MADDEN. Suppose he was handed a time check before the next pay day and was put off after one pay day. What would become of one of these checks?

Mr. GAY. He would not get one of these checks if he had not worked.

Mr. MADDEN. How do you know? That is what I want to know.

Mr. GAY. That would have to agree with the pay roll when it comes into the office, and the time inspectors are out to check the time on pay roll.

Mr. MADDEN. Is there any possibility of collusion between the time inspector and the timekeeper?

Mr. GAY. There is a possibility, but I do not think it has happened.

Mr. MADDEN. Has any such collusion ever been discovered down here?

Mr. GAY. I have never heard of any such cases at all.

Mr. MADDEN. What cases were there where men were prosecuted for disposing of these time checks?

Mr. GAY. I do not know of any where they disposed of these, but where they had trouble about the brass checks.

The CHAIRMAN. It was not the disposal of these checks but it was the identification check that they were prosecuted for trying to dispose of.

Mr. MADDEN. That would amount to the same thing.

Mr. BURLESON. Some were prosecuted, I understand, for raising these checks.

Mr. GAY. The old form of certificate had figures on the outside of the margin. There were cases where those figures were raised. But there is practically no chance in the new form for raising the check.

Mr. MADDEN. Where the men can not sign their names, how do you take a receipt?

Mr. GAY. They are witnessed by a bonded man—signed by cross, and witnessed by a bonded man.

SYSTEM OF COST-KEEPING INAUGURATED.

The CHAIRMAN. Have you a man in the disbursing office who is now engaged in endeavoring to ascertain the cost of municipal improvements in Panama and Colon?

Mr. GAY. Yes, sir; there is such a man in our office.

The CHAIRMAN. How long has he been working on that?

Mr. GAY. I should judge two months.

The CHAIRMAN. Do you know what the result of his work has been thus far?

Mr. GAY. I do not know. No report has been turned in. He is working in connection with the Chief Engineer's office here. Somebody detailed from that office is working with him.

Colonel GOETHALS. We have a board of three to look after the matter, Mr. Chairman, and we took one member from the disbursing office, one from the Examiner of Accounts' office, and one from this office.

The CHAIRMAN. They are making that investigation?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. When they make their report, Colonel, will you send me a copy of it?

Colonel GOETHALS. Yes, sir.

Mr. ROGERS. The statement was gotten up last Spring at the time of the adjustment with the Panamanian Government.

Colonel GOETHALS. Yes, but we will not stop with that statement, for at that time we did not have sufficient time. So we concluded we would have it thrashed out all over again.

The CHAIRMAN. That board have also adopted the plan, have they not, Colonel, of how they will arrive at the cost of water supply and sewerage, etc.?

Colonel GOETHALS. Yes, sir.

The CHAIRMAN. Do you know the plan that they have adopted—the plan that they are working on?

Colonel GOETHALS. They are going through all the disbursements and trying to ascertain from them all the accounts relating to it.

EMPLOYEES IN DISBURSING OFFICE.

The CHAIRMAN. You have 152 employees estimated for in the disbursing office for the fiscal year 1909. How many have you employed there now?

Mr. GAY. One hundred and forty-five. One hundred and forty-one at the present time.

The CHAIRMAN. Your disbursements consist of payments to the men, the personal force, including all clerks?

Mr. GAY. Every class.

The CHAIRMAN. And those disbursements are made from pay rolls made up in advance?

Mr. GAY. Yes, sir.

The CHAIRMAN. Will you explain to the committee how those pay rolls are made up?

TIME-KEEPING AND PAY-ROLL SYSTEM.

Mr. GAY. I will just read, if you desire, a statement concerning the time-keeping and pay-roll system in use at present.

The CHAIRMAN. Very well. Read that, and then give it to the stenographer.

Mr. GAY. Payments are made in cash. (Reads:)

Disbursing Department on the Isthmus.

TIME KEEPING AND PAY ROLLS.

The force required to make the time pay roll at present used by this office consists of 1 accountant in charge, at \$2,400, and 28 other clerks.

The time is kept in the field in books, one required for the odd and one for the even days, in order that one book may be on the work while the other, for the preceding day, is in the time-keeping office for pay-roll preparation.

The present books carry four odd and four even days in each book; for instance, the odd days at the beginning of the month being the 1st, 3d, 5th, and 7th. At the close of these periods the books are forwarded to the Disbursing Office for the preparation of the time pay roll, which is compared with the time pay roll prepared by the outside offices when sent in at the close of the month, giving an absolute check of the time books and time pay rolls prior to payment.

On December 1 there will be only one time book for the odd and one time book for the even days during the entire month, thus doing away with the work attendant upon writing the names as many times as heretofore. The making of the time pay roll in the Disbursing Office will be discontinued, and the time-keeping offices required to furnish a time and a pay roll in place of the time-pay roll as at present. The time roll, giving the details by days, will be retained in the Disbursing Office as the office record. The pay roll, giving all necessary data to show correctness of payment, but giving only the total of the

time worked for the month, will become the voucher which will be forwarded by the Disbursing Officer to the Auditor for the War Department for credit for payments made.

The pay receipts, authenticated by this office, covering the payments for each employee are presented at the pay car, where the employee is identified by his numbered brass check as well as his signature witnessed by an employee duly authorized and bonded for that purpose. Payments are made in cash. This pay receipt has proved to be the most satisfactory method of meeting the conditions in regard to pay on the Canal work.

VOUCHER DIVISION.

The Voucher Division consists of 1 chief of division, at \$2,400 per annum, and 7 clerks, 1 of whom is practically law clerk and another whose time is almost entirely occupied in work pertaining to the settlement of estates of deceased employees. Vouchers prepared and paid amounting to \$742,000 during the month of October, 1907.

PAY FORCE.

The Pay Force consists of 12 men (1 of whom is on indefinite leave without pay and will probably not return), the cashier in charge, receiving \$3,100 per annum. This covers the personnel of the branches at Panama and Cristobal, as well as the main office. Two of this force make no payments, but assist in the necessary checking. The pay car requires 6 men, branches 1 each, and the main office 1 man when the others are absent on the pay car, making a total of 9 actually engaged in making payments. October pay roll, \$1,359,000.

GENERAL ACCOUNTS DIVISION.

The General Accounts Division, which has charge of all detail work of cost keeping, classification of expenditures, statistical work, preparation of official statements, etc., consists of 1 chief of division, at \$2,400, and 13 clerks.

PROPERTY DIVISION.

The Property Division, which has charge of all property accountability of the different officers connected with the Canal work, reports and earnings of the kitchens and hotels, as well as the accounting for the commissary books issued to the different departments of the Canal work, consists of 1 chief of division, at \$2,400, and 48 clerks.

BOOKKEEPING DIVISION.

The Bookkeeping Division, having charge of the cashbooks and preparation of the monthly accounts of the Disbursing Officer of the Canal Commission and treasurer of the Canal Zone, consists of 1 bookkeeper, at \$2,125, and 5 clerks.

FILES.

The correspondence files are cared for by 1 clerk, at \$1,800, and 1 clerk, at \$1,500.

PERSONNEL.

The personnel records of all gold employees and the checking and recording of all gold payments require 1 accountant, at \$2,100, and 2 assistants.

RECEIVING TELLER.

The receiving teller, who handles all incoming funds of the Commission and the Canal Zone coming from various sources on the Isthmus, as well as the numerous blanks furnished the various departments in connection with disbursements, etc., and the issue of all commissary and hotel books to the various departments for their men, requires 1 man, at \$2,000, and 3 assistants.

Receipts, \$260,000, Isthmian Canal Commission; Zone receipts, money orders, \$280,000; Zone receipts, other sources, \$20,000; Zone disbursements, \$1,825.

1 disbursing officer ^a	\$7,800
1 chief clerk, at \$3,600	3,600
1 cashier, ^a at \$3,100	3,100
3 paymasters, ^{a, b} at \$2,500	7,500
4 clerks, ^c at \$2,400	9,600
1 clerk, ^d at \$2,200	2,200
1 clerk, ^e at \$2,125	2,125
4 clerks, ^{f, g} at \$2,100	8,400
4 clerks, ^h at \$2,000	8,000
5 clerks, at \$1,950	9,750
2 clerks, ^a at \$1,850	3,700
17 clerks, at \$1,800	30,600
33 clerks, at \$1,500	49,500
32 clerks, at \$1,200	38,400
1 coupon counter, at \$1,200	1,200
1 coupon counter, at \$1,000	1,000
7 coupon counters, at \$720	5,040
3 coupon counters, at \$800	1,800
1 telegrapher, at \$900	900
1 money counter, at \$900	900
1 money counter, at \$780	780
3 money counters, at \$720	2,160
4 copyists, at \$900	3,600
1 copyist, at \$780	780
2 copyists, at \$720	1,440
1 copyist, at \$600	600
1 chief messenger, at \$800	800
1 messenger, at \$420	420
2 messengers, at \$360	720
1 watchman-janitor, at	450
1 watchman-janitor, at	360

141

207, 085

On leave or sick, 15.

MEMORANDUM.

Total payments fiscal year 1907	\$15,513,389.21
Expenses Disbursing Office on Isthmus	\$155,724.36
Per cent expenses to total payments	1.04
Total payments first quarter fiscal year 1908	\$5,714,160.07
Expenses Disbursing Office on Isthmus	53,228.67
Per cent expenses to total payments	0.93
Payment month of October, 1907	\$2,101,532.50
Expenses Disbursing Office (estimated)	\$18,928.11
Per cent expenses to payments	0.081

The CHAIRMAN. What effect will this change have in the amount of work to be done in your office?

Mr. GAY. It will cut down the making of a copy of the time pay roll, as at present. We will only have to check up the pay roll that they send in and the time roll with each other, and the time roll as sent in by the timekeepers will be accepted as the basis. They certify as to the correctness of the time, and the head of the division certifies also.

^a Bonded men.

^b 1 at Panama, 1 at Colon, and 1 gold paymaster in cashier's office.

^c 1 assistant chief clerk and chief voucher division, 1 chief property division, 1 chief general accounts division, 1 chief pay roll division.

^d Acting paymaster; bonded.

^e Bookkeeper in charge; bonded.

^f 2 bonded; 1 absent on leave without pay, probably not return.

^g 2 pay clerks, 1 in charge of gold personnel, and 1 voucher man, practically law clerk.

^h 1 assistant chief pay roll division, 1 receiving teller, 2 pay clerks; 3 bonded.

Mr. MADDEN. What you mean by making a time roll is putting each day's record in the book?

Mr. GAY. Yes, sir.

Mr. MADDEN. And instead of doing that you take the aggregate number of days?

Mr. GAY. That is, on the pay roll we only have the aggregate number of days.

The CHAIRMAN. Will you require as many men in the disbursing office after this change takes effect as you require at present?

Mr. GAY. Not as many as we would require if we retained the same pay dates. But if the pay dates are advanced, as I understand it is the desire of the Commission, we may require as many men, because we are working now after hours. We are supposed to have two hours for lunch, but a good many of the force come back and take only one hour, and for the past period many of them have come and worked at night. I have a copy of this time pay roll as we have it at present, if you wish to see it. One goes into detail, and the other chops out the detail in the middle. It will just be a question of omitting that.

The CHAIRMAN. Did you make up the estimates for the fiscal year 1909 for the disbursing office?

Mr. GAY. No, sir. They were made up before I came down here.

The CHAIRMAN. By whom were they made up?

Mr. GAY. They were made up by Mr. Williams.

The CHAIRMAN. In view of this change, reducing the amount of work and the possible number of employees, do you know why the estimates provide for 11 more men in the disbursing office for the next fiscal year than you now have?

Mr. GAY. The estimate was made before this change was contemplated. This change was only brought up about a month ago.

There was one point that I omitted there. That estimate was made in anticipation of a change when some of the men in the Examiner's office were sent down to us—the bookkeeping and property records. That estimate covers that. If there is a reduction in that force, that is less than the estimate.

PROPERTY ACCOUNT.

The CHAIRMAN. You have explained the work done in your office in connection with the pay roll. Do you keep the property account in the disbursing office, too?

Mr. GAY. That is kept there.

The CHAIRMAN. How many have you employed on the property account?

Mr. GAY. Forty-eight clerks.

The CHAIRMAN. What is included in your property account?

Mr. GAY. The property division, which has charge of property accountable of the different officers connected with the canal work and the reports of earnings of the kitchens and hotels, as well as the accounting for the commissary books issued to the different departments of the canal work, consists of one chief of division, at \$2,800, and 28 assistants.

The CHAIRMAN. You have a division that is separate?

Mr. GAY. Yes. We have only one chief clerk for the entire office.

The CHAIRMAN. He has 141 men under him?

Mr. GAY. Yes.

The CHAIRMAN. He supervises the work of all?

Mr. GAY. Yes; everything passes through him.

The CHAIRMAN. What does your property account consist of?

Mr. GAY. Mr. Faure can probably tell about that. He has charge of it.

Mr. FAURE. It consists of the records of the nonexpendable property in the hands of the various departments in use in the work; also the records of material handled in the Material and Supply Department. It is kept on the loose-leaf ledger system, an item for each article; and the ledger is posted there by Mr. Tubby as he issues the article, and the store invoices are receipted for by the different departments receiving the materials. They make a bill, what is called a store invoice. They acknowledge receipt of it, and the original is sent by Mr. Tubby to the disbursing office to his credit, and a technical account is kept of every article. Besides that, the record of the nonexpendable property—whatever is nonexpendable—is kept separately against the various officers accountable, and they are relieved only through a Board of Survey, or through the sale of the property.

The CHAIRMAN. That is in regard to property that is issued out from the store on a requisition?

Mr. FAURE. Yes, sir.

The CHAIRMAN. That is, the property account of the Isthmian Canal Commission shows at all times the amount of property that has been distributed?

Mr. FAURE. All the property that is on hand; the balance on the cards shows what is in the hands of Mr. Tubby. The nonexpendable balance shows what nonexpendable property is in the hands of the various officers for use in the work.

Mr. MADDEN. Your record would be a check on Mr. Tubby's office?

Mr. FAURE. Yes, sir; it would.

Mr. MADDEN. Your office record would have to correspond with his?

Mr. FAURE. Yes.

The CHAIRMAN. Do you know whether or not there is anyone in your office or in any of the departments whose business it is to examine your accounts and Mr. Tubby's for the purpose of determining whether or not they are balancing?

Mr. FAURE. We get from Mr. Tubby at the close of the year a copy of his inventory, and our books are balanced with that and his attention is called to it should there be a shortage or overplus. The inventory that is taken orally is verified by the Examiner of Accounts.

The CHAIRMAN. You have in addition to that an account of the supplies that are purchased?

Mr. FAURE. That is kept on the same record as is made when the supplies are purchased, and Mr. Tubby acknowledges receipt of them, and his account is charged with the receipt of them.

The CHAIRMAN. Material or equipment, or whatever it is?

Mr. FAURE. Yes.

The CHAIRMAN. And the evidence is the voucher made for its payment?

Mr. FAURE. The invoices are certified to by Mr. Tubby and sent to the States, to the disbursing officer in Washington, who prepares the

voucher and pays it there. This officer gets a list of such accounts weekly on each boat.

The CHAIRMAN. Most of the disbursements of material and supplies are paid in the States?

Mr. FAURE. Yes, sir.

The CHAIRMAN. That voucher is prepared in Washington and not here?

Mr. FAURE. Not here.

The CHAIRMAN. You are furnished with copies and a record is kept here?

Mr. FAURE. Yes, sir; we are furnished with copies of the invoices.

The CHAIRMAN. Now what other accounts, Mr. Gay, do you have besides the pay roll and the property account and the account of purchases of supplies and materials?

COST-KEEPING ACCOUNT.

Mr. GAY. We have the cost-keeping account. That also is in Mr. Faure's department.

The CHAIRMAN. Mr. Faure, will you explain the system in the disbursing office?

Mr. FAURE. The division mentioned by Mr. Gay is really the book-keeping division, wherein the accounts are kept with the different departments for material; also the record of all bills against individuals and companies outside of employees, and against the employees. We have accounts with the Treasurer of the United States, which represent the balance of the appropriation in his hands. A regular system of books is kept, such a system as would be kept in a railroad or commercial house, to show exactly what funds are on hand and how much money has been disbursed. From those statements statistics will be gotten up.

The CHAIRMAN. Have you got any of the sheets here that we saw the other day when visiting your office, at Empire, showing the method of this cost-keeping account, the method under which the cost-keeping account is kept?

Mr. GAY. Yes, sir [submitting same].

Following are some of the sheets, etc., referred to:

INSTRUCTIONS.

Use one line for each sheet of pay roll.

Use as many "Recap." sheets as required, totaling each sheet and carrying amounts forward to proper columns on next sheet.

I hereby certify that the above is a correct recapitulation of the foregoing pay roll consisting of (insert number) sheets.

_____,
Timekeeper.

I hereby certify that the persons named on the pay roll, consisting of (insert number) sheets, of which the above is a correct recapitulation, were actually employed as stated.

_____,
Officer in charge of work.

Approved: _____,

DISBURSING OFFICE REGISTER
NO. _____

The pay roll of which the above is a recapitulation approved for payment in the sum of \$_____,

_____,
Head of Department.

D. O. Reg. No. ____.

(Indorsement) : Form D. O. 338-Rev. Voucher No. _____. The United States of America. Isthmian Canal Commission. Time and pay roll recapitulation. Department _____. Division _____. Location _____. Period, from _____, 190____, to _____, 190____. Accounts of Edward J. Williams, Disbursing Officer. Amount, \$_____, U. S. Currency. Appropriation _____.

[Form D. O.]

THE UNITED

Department _____.

Division _____.

Location _____.

Isthmian Canal Commission—Time

(The values herein expressed are

Line No.	Employee's brass check No.	Time voucher or pay certificate No.	Name.	Occupation.	Unit of work.	1	2	3	4	5	6	7	8	Totals 1st to 8th (in red ink).	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													
13																													
14																													
15																													
16																													
17																													
18																													
19																													
20																													

INSTRUCTIONS.

These rolls must be made in good black ink, complete in every detail called for.

Semimonthly rolls (first half month) should show totals from 1st to 8th; second half from 16th to 23d, both dates, inclusive, for each man, in designated column.

Monthly rolls should show totals from 1st to 23d, inclusive.

Pay rolls and pay certificate should carry register No. (to be designated by disbursing officer), and all pay certificates and roll carry pay certificate Nos., beginning with No. 1, on each roll, when forwarded to disbursing office. (See circular No. 3 revised.)

I hereby certify that the persons named above have been employed in the service of the Isthmian Canal Commission during the time and in the manner specified, and that the time and amount returned therefor is correct.

_____,
Timekeeper.

I hereby certify that the above persons were actually employed as stated.

_____,
Officer in charge of work.

Approved:

_____. |

337-Rev.]

STATES OF AMERICA.

Sheet No. —.

and pay roll from — to — 190—. Disbursing officer register No. —.

in (insert gold or silver) currency.]

Totals 1st (or 16th to 22d, inclusive), (red ink.)							Total.		Rate of pay per unit.	Amount.	Total amount earned.	Net amount due.	Line No.	Deductions on account of—						Remarks.			
	24	25	26	27	28	29	30	31						Overtime.	Regular time.	Units worked.	Total deductions.	P. R. R. Company books.	Isthmian Canal Commission.			Transportation.	
																			Hotel books.		Laborers' kitchens.		Equipment furnished.	Lost metal checks.
													1										
													2										
													3										
													4										
													5										
													6										
													7										
													8										
													9										
													10										
													11										
													12										
													13										
													14										
													15										
													16										
													17										
													18										
													19										
													20										

Disbursing office register No. —.

The above pay roll is approved for payment in the sum of \$—.

Head of Department.

(Indorsement): Form D. O. 337-Rev. Voucher No. —. The United States of America Isthmian Canal Commission. Time and pay roll. Department —, division —, location —. Period from —, 190—, to —, 190—. Accounts of Edward J. Williams, Disbursing Officer. Amount, \$—, U. S. currency. Appropriation —.

[Form D. O. 347.]

Sheet No. —.

D. O. Register No. —

ISTHMIAN CANAL COMMISSION.

Department..... Division..... Location.....

Detailed report of authorized collections to be made from employees for Panama Railroad commissary books issued on (gold or silver) pay rolls for the period ending ———, 190—.

Pay certificate No.	Name.	Metal check No.	Book Nos.	A Amount (gold).	B Amount (gold).	Remarks.

See instructions on back.

To Mr. EDWARD J. WILLIAMS,
Disbursing Officer, Empire, C. Z.

Certified to be correct. _____,

Title, _____.

[On back.]

INSTRUCTIONS FOR USE OF FORM D. O. 347.

Use this blank only for Panama Railroad Company commissary book collections, make up in triplicate, and attach to pay roll.

The coupons for all books covered by this collection report must be attached to it.

The receipt for coupon books, Form D. O. 332 revised, must be sent in with collection report.

On it depends credit to you for books issued.

The duplicate or second coupon of all commissary books must be detached by the timekeeper issuing the book and forwarded to the disbursing officer with collection report.

This form to take the place of previous issues.

Amounts must always be shown in gold. Where two or more books are sold to one man, detail amounts in column "A" and extend total to column "B." All single sales into column "B."

No amounts must be placed on collection reports other than those appearing on pay rolls.

This form must also be used when books are sold for cash. Remittance of cash accompanied by authority for cash sale to be made promptly to the disbursing officer.

No book should be issued to a man unless he has sufficient funds due him at time of issue to cover full value of book.

Should a book be issued contrary to the above, the timekeeper responsible must remit to the disbursing officer an amount in addition to the collection on the pay roll sufficient to cover the full value of the book, making note in "Remarks" column the amount remitted and date. Only deduct on pay rolls amount equal to money due for services performed.

The complete number of each commissary book, including designating letter, must be shown properly columned. Not sufficient to state from No. X 10 to 12, but shown No. X 10, X 11, X 12.

Each report should be totaled, and, where necessary, the footings forwarded or summarized on last sheet, to show the total collection on pay roll.

Empire, C. Z.

EDWARD J. WILLIAMS, Disbursing Officer.

[Form D. O. 348—20 m-6-26.]

Sheet No. _____ D. O. Register No. _____

UNITED STATES OF AMERICA.—ISTHMIAN CANAL COMMISSION.

Department _____ Division _____ Location _____

Detailed report of authorized collections to be made from employees for hotel and European mess books issued and for other accounts as stated on — pay rolls for the period ending —, 190—.

Pay certificate No.	Name.	Metal Check No.	Book Nos.	Hotel books.	European mess books.	Board I. C. C. kitchens.	Kitchen equipment.	Lost metal check.	Transportation.	Medical service.	Miscellaneous.	Remarks.
				U.S. C'y.	U.S. C'y.	U.S. C'y.	U.S. C'y.	U.S. C'y.	U.S. C'y.	U.S. C'y.	U.S. C'y.	

See instructions on back.

To Mr. EDWARD J. WILLIAMS,
Disbursing Officer, Empire, C. Z.

Certified to be correct:

[On back.]

Title.

INSTRUCTIONS FOR USE OF FORM D. O. 348.

Use this form for all collections other than for P. R. R. Co.'s commissary books; make up in duplicate and attach to pay roll.

The coupons for all books covered by the collection report must be attached to it.

The duplicate coupon of hotel books and the original coupon of the European mess books must be detached by the timekeeper issuing the books and forwarded to the disbursing officer with collection report.

This form to take the place of all previous issues.

Amounts must always be shown in gold.

Use "Miscellaneous" column for all accounts for which no heading is shown, inserting in the "Remarks" column the reason collection is made.

No amounts must be placed on collection reports other than those appearing on pay rolls.

This form must also be used when books are sold for cash. Remittance of cash accompanied by authority for cash sale to be made promptly to the disbursing officer.

No book should be issued to a man unless he has sufficient funds due him at time of issue to cover full value of book.

Should a book be issued contrary to the above, the timekeeper responsible must remit to the disbursing officer an amount in addition to the collection on the pay roll sufficient to cover the full value of the book, making note in the "Remarks" column the amount remitted and date. Only deduct on pay rolls amount equal to money due for services performed.

The complete number of each hotel or European mess book must be shown properly columned.

Each report should be totaled, and where necessary the footings forwarded or summarized on last sheet to show the total collection on pay rolls for the several accounts.

EDWARD J. WILLIAMS,
Disbursing Officer.

EMPIRE, C. Z.

[Blue.]

Form approved by Comptroller of the Treasury, April 11, 1907. D. O. Form No. 363b.

Receipt No. G 71301.

Employee's No. —

Pay No. —

Dept. — THE UNITED STATES—ISTHMIAN CANAL COMMISSION—PAY RECEIPT.

Division —

NOT NEGOTIABLE.

Pay Roll Register No. —

Location —

Payable only to the person to whom drawn, if presented for payment within 60 days after close of pay period, authenticated and properly signed and witnessed.]

I, —, —, acknowledge receipt from Edward J. Williams, Disbursing Officer, of the sum of — dollars, Panama silver, in full payment for services rendered by me during the month ended —, consisting of \$— authorized deductions, as shown on pay roll of above register number and — (\$—) dollars cash.

Witness to Signature.

Employee's Signature.

[Yellow.]

Form approved by Comptroller of the Treasury, April 11, 1907.

D. O. Form No. 363c.

Receipt No. G 23351.

Employee's No. —

Pay No. —

Dept. — THE UNITED STATES—ISTHMIAN CANAL COMMISSION—PAY RECEIPT.

Division —

NOT NEGOTIABLE.

Pay Roll Register No. —

Location —

[Payable only to the person to whom drawn, if presented for payment within 60 days after close of pay period, authenticated and properly signed and witnessed.]

I, —, —, acknowledge receipt from Edward J. Williams, Disbursing Officer, of the sum of — dollars, U. S. currency, in full payment for services rendered by me during the month of —, consisting of \$— authorized deductions, as shown on pay roll of above register number and — (\$—) dollars cash.

Witness to Signature.

Employee's Signature.

The CHAIRMAN. Mr. Faure, will you take these other sheets and explain these columns? Take this sheet, which illustrates the method of keeping the cost account; give it to the stenographer afterwards, but state now to the committee such explanation as will make clear the method.

Mr. FAURE. Yes, sir. This statement here is the detailed account of the expenditures. Here is a classification of the different accounts making up each item. For instance, it begins with the Department of Civil Administration. It shows the different items for administration, judiciary, revenues and posts, education, police and prisons, fire protection, military protection, maintenance and operation of the waterworks and sewers in Panama and in Colon, repairs and maintenance of pavements in Panama and Colon, and miscellaneous Zone public works.

Then, under Sanitation, we have administration, hospitals and asylums, quarantine, sanitation, and Zone sanitation. The first item of sanitation is for Panama and Colon. Then, under Canal Construction we have administration, dry excavation, dredging excavation, Gatun

dam and spillway, Gatun locks, La Boca dam and spillway, La Boca locks, Pedro Miguel dam, and Pedro Miguel locks. Under Municipal Engineering we have superintendence and other expenses, waterworks and sewers in Panama and Colon, Zone waterworks and sewers, paving in Panama and Colon, Zone roadways, and miscellaneous. That work comprises such work as the Municipal Engineer does in building municipal improvements. Then the Division of Building and Construction, under the same Department of Construction and Engineering: First, superintendence and other expenses, construction of buildings and repairs of buildings. Then, under Department of Labor, Quarters, and Subsistence, administration, recruiting, quarters and hotels, and mess kitchens. Then, under Plant Account, rolling stock, excavating machinery, floating equipment, shops and other machinery and tools, rails and fastenings, ties, lands purchased, locks and wharves, and construction of electric-light plants. Then, finally, comes Miscellaneous, including general expenses of Isthmian Canal Commission, disbursing officers, Examiner of Accounts, transportation on the Isthmus, Panama Railroad second main track, relocation of the Panama Railroad, telegraph and telephones, moving and care of French material and equipment, construction and furnishing of the Santo Tomas Hospital, and operation and repairs of electric plants.

The tabulation referred to follows:

Isthmian Canal Commission—Classified statement of expenditures subsequent to July 1, 1907.

Account No.		Salaries and wages.	Material and supplies.	Incidental expenses.	Collections from employees and other sources.	Total current month.	Same month last year.
	<i>Department of Civil Administration.</i>						
501	Administration.....	\$5,636.52	\$121.16	\$16.22		\$5,773.90	\$8,467.86
502	Judiciary.....	3,788.06	194.86	58.25	\$5.00	4,036.17	2,856.06
503	Revenues and posts.....	9,770.68	258.18	187.66	16.67	10,193.85	9,792.33
504	Education.....		58.62			58.62	4,550.12
505	Police and prisons.....	11,823.39	507.42	895.85		13,226.66	13,356.10
506	Fire protection.....	2,856.03	212.08	25.05		3,093.16	364.75
507	Military protection.....	1,658.93				1,658.93	76.37
508	Maintenance and operation, waterworks and sewers, Panama.	1,768.28	7.81	.97		1,768.06	830.28
509	Maintenance and operation, waterworks and sewers, Colon.	799.66	5.99	10.00		815.65	552.68
510	Repairs and maintenance pavements, Panama.....						
511	Repairs and maintenance pavements, Colon.....			5.00		5.00	
512	Miscellaneous Zone public works.....	3,681.98				3,681.98	1,067.30
	Total.....	41,774.53	1,366.12	1,199.00	21.67	44,317.98	41,913.65
	<i>Department of Sanitation.</i>						
520	Administration.....	8,758.63	182.39	325.00		9,266.02	6,010.12
521	Hospitals and asylums..	47,446.19	8,690.08	521.07	9,273.96	47,753.38	50,787.39
522	Quarantine.....	2,837.35	385.77	165.00	1,430.10	1,958.02	2,467.50
523	Sanitation.....	12,863.53	1,536.88	839.69	36.81	15,203.29	19,671.80
524	Zone sanitation.....	44,718.72	7,325.35	4,244.78		56,288.85	28,276.39
	Total.....	117,024.42	18,099.47	6,095.54	10,740.87	130,460.56	107,213.20

Isthmian Canal Commission—Classified statement of expenditures, etc.—Continued.

Account No.]		Salaries and wages.	Material and supplies.	Incidental expenses.	Collections from employees and other sources.	Total current month.	Same month last year.
<i>Department of Construction and Engineering—Canal Construction.</i>							
530	Administration.....	\$8,882.72	\$1,048.22	\$283.35		\$10,212.29	\$10,795.75
531	Dry excavation.....	548,471.15	145,825.67	15,751.12	\$640.19	709,407.75	264,729.30
532	Dredging excavation.....	47,765.25	15,021.52	822.58	3,245.23	60,364.12	26,271.21
533	Gatun dam and spillway.....	18,139.42	9,699.47	415.70		28,254.59	
534	Gatun locks.....	27,399.95	9,108.86	139.30		36,648.11	
535	La Boca dam and spillway.....	10,456.67	1,530.45	2.79		11,989.91	
536	La Boca locks.....	15,389.66	4,763.56	.48		20,153.70	
537	Pedro Miguel dam.....	405.24	852.69	.01		1,257.94	
538	Pedro Miguel locks.....	691.59				691.59	
	Total.....	677,601.65	187,848.44	17,415.33	3,885.42	878,980.00	301,796.16
<i>Department of Construction and Engineering—Division of Municipal Engineering.</i>							
550	Superintendence and other expenses.....	4,283.96	113.40			4,397.36	3,768.80
551	Waterworks and sewers, Panama.....	3,071.24	1,854.77	208.62	21.11	5,113.52	7,073.74
552	Waterworks and sewers, Colon.....	6,844.39	2,088.18	63.85		8,996.42	9,172.29
553	Zone waterworks and sewers.....	35,214.44	18,982.11	1,565.02	221.56	55,540.01	30,976.34
554	Paving, Panama.....	5,868.64	6,734.51	624.79		13,225.94	13,735.68
555	Paving, Colon.....	6,934.71	6,720.56	716.58		13,371.80	3,288.68
556	Zone roadways.....	21,342.51	7,182.19	1,231.93		29,756.63	11,969.47
557	Miscellaneous.....						
	Total.....	82,557.89	43,675.72	4,410.74	242.67	130,401.68	79,985.00
<i>Department of Construction and Engineering—Division of Building and Construction.</i>							
560	Superintendence and other expenses.....	16,315.17	55.03	35.15		16,405.35	14,453.05
561	Construction of buildings.....	173,034.35	132,489.54	1,975.68	2,968.45	304,531.12	127,572.91
562	Repairs of buildings.....	27,935.08	10,045.46	146.99		38,127.53	7,794.13
	Total.....	217,284.60	142,590.03	2,157.82	2,968.45	359,064.00	150,120.09
	Total department construction and engineering.....	977,444.14	374,114.19	23,983.89	7,096.54	1,368,445.68	531,901.26
<i>Department of Labor, Quarters, and Subsistence.</i>							
580	Administration.....	13,116.55	412.71	2,383.95		15,913.21	7,122.82
581	Recruiting.....			8,536.79		8,536.79	41,864.50
582	Quarters.....	24,386.02	36,498.03	1,467.40		62,351.45	14,174.72
583	Hotels and mess kitchens.....	22,070.98	7,326.13	34,174.88	48,483.33	53,261.10	1,000.06
	Total.....	59,573.55	44,236.87	21,786.74	48,483.33	33,540.35	64,162.10
<i>Plant Account.</i>							
590	Rolling stock.....	14,247.16	69,640.71	.60		83,888.47	155,424.67
591	Excavating machinery.....	3,283.55	10,105.29	45.62		13,434.46	26,154.83
592	Floating equipment.....	11,680.27	17,620.75	227.09		29,528.11	45,334.63
593	Shops and other machinery and tools.....	3,420.56	10,285.80	52.53		13,758.89	6,016.54
594	Rails and fastenings.....	6.24	48,249.75			48,255.99	2,976.10
595	Ties.....		48,206.38			48,206.38	1,744.47
596	Lands purchased.....						
597	Locks and wharves.....						30,935.71
598	Construction of electric-light plants.....	3,717.29	10,154.00			13,871.29	469.00
	Total.....	36,355.07	214,262.68	325.84		250,943.59	270,066.44

Isthmian Canal Commission—Classified statement of expenditures, etc.—Continued.

Account No.		Salaries and wages.	Material and supplies.	Incidental expenses.	Collections from employees and other sources.	Total current month.	Same month last year.
	<i>Miscellaneous.</i>						
600	General expenses, Isthmian Canal Commission.....	\$3,391.17	\$1,431.34	\$2,576.57		\$7,399.08	\$17,026.75
601	Disbursing officers.....	15,978.52	2,286.08	84.18	\$243.94	18,114.94	9,244.20
602	Examiner of accounts.....	7,968.42	122.45	35.49		8,126.36	12,997.04
603	Transportation on the Isthmus.....	15,696.26	10.18	1.64	188.86	15,500.87	22,646.83
604	Panama Railroad second main track.....	60.97	77.61			138.58	7,791.41
605	Relocation of the Panama Railroad.....	7,572.10	1,143.69	10.60		8,726.39	
606	Telegraph and telephones.....	360.00	6.04			366.04	27,015.98
607	Moving and care of French material and equipment.....	683.40	248.56	.60		932.65	982.02
608	Construction and furnishing Santo Tomas Hospital.....	45.72	46.46			92.18	2,371.49
609	Operation and repairs of electric-light plants.....	1,585.05	883.76	43.52		2,512.33	
	Total.....	53,341.70	6,245.81	2,782.60	430.69	61,909.42	100,075.71
	<i>Recapitulation.</i>						
	Department of civil administration.....	41,774.53	1,366.12	1,199.00	21.67	44,317.98	41,913.65
	Department of sanitation.....	117,024.42	18,090.47	6,095.54	10,740.87	130,469.56	107,213.20
	Department of construction and engineering.....	977,444.14	374,114.19	23,983.89	7,096.54	1,368,445.68	531,901.25
	Department of labor, quarters and subsistence.....	59,573.55	44,236.87	21,786.74	48,483.33	33,540.35	64,162.10
	Plant account.....	36,355.07	214,262.68	325.84		250,943.59	270,056.44
	Miscellaneous.....	53,341.70	6,245.81	2,752.60	430.69	61,909.42	100,075.71
	Total expenditures.....	1,285,513.41	658,316.14	12,570.13	66,773.10	1,889,626.58	1,115,322.35

The CHAIRMAN. As the result of this method, and by means of the statement that you have submitted to the committee and which will be printed as part of your statement to the committee, you arrive at the unit of cost of the work that is going on, do you not?

Mr. FAURE. We arrive at the canal-construction unit of cost, but as to expenses of administration we have no unit. The statements that we will furnish will agree with those furnished by the cost-keeping division of the chairman except as to such accounts as may be later prorated into that. For instance, it has been the custom to prorate these miscellaneous accounts in the work on an agreed percentage, which has been as a rule the labor charge.

ENGINEERING COST KEEPING.

The CHAIRMAN. How many clerks have you employed on your engineering cost keeping, Colonel?

Colonel GOETHALS. Two.

Mr. MADDEN. This statement of cost simply contemplates the amount of material that enters into the plant?

Colonel GOETHALS. Exactly.

Mr. MADDEN. And your cost-keeping accounts provide for the discovery of the amount of work done by the plant?

Colonel GOETHALS. Exactly.

Mr. MADDEN. That is quite a different proposition.

Colonel GOETHALS. Yes.

Mr. FAURE. This is the statement submitted for the last fiscal year, which shows that there are other items than those mentioned that enter into the accounts. For instance, all these items are expenditures, but are not yet classified:

Isthmian Canal Commission—Statement of appropriations and of expenditures to June 30, 1907.

APPROPRIATIONS.

June 28, 1902.	Canal connecting Atlantic and Pacific oceans.....	\$10,000,000.00
Dec. 21, 1905.	Canal connecting Atlantic and Pacific oceans.....	11,100,000.00
Feb. 27, 1906.	Material purchases in United States.....	1,000,000.00
	Miscellaneous expenses on Isthmus.....	400,000.00
	Panama Railroad and second track.....	200,000.00
	Isthmus pay rolls.....	2,000,000.00
	Salaries and incidental expenses in United States.....	75,000.00
	Equipment purchases.....	1,565,786.00
	Reequipment Panama Railroad.....	650,000.00
	Total available appropriations to June 30, 1906.....	\$26,990,786.00
June 30, 1906.	Expenses in United States.....	368,242.69
	Salaries.....	\$251,063.33
	Incidental expenses.....	117,179.36
	Construction, Engineering and Administration.....	21,018,537.24
	Pay, officers and employees....	\$2,600,512.00
	Pay, skilled and unskilled labor.....	8,650,661.00
	Material purchases.....	9,032,814.24
	Incidental expenses on Isthmus.....	734,550.00
	Civil Administration.....	968,200.00
	Pay, officers and employees....	\$600,000.00
	Pay, skilled and unskilled labor.....	50,000.00
	Material and incidental expenses.....	318,200.00
	Sanitation.....	2,101,435.15
	Pay, officers and employees....	\$600,000.00
	Pay, skilled and unskilled labor.....	679,068.00
	Material and incidental expenses.....	822,367.15
	Reequipment of Panama railroad....	1,000,000.00
	Total appropriation, year 1907.....	25,456,415.08

APPROPRIATIONS—Continued.

Mar. 4, 1907. Expenses in United States	\$253,000.00
Salaries.....	\$184,000.00
Incidental ex-	
penses.....	69,000.00
Construction, Engineering and Ad-	
ministration	20,366,000.00
Pay, officers and	
employees...	\$2,772,000.00
Pay, skilled and	
unskilled la-	
bor	7,990,000.00
Material pur-	
chases.....	9,046,000.00
Incidental ex-	
penses on Isth-	
mus.....	558,000.00
Civil Administration.....	825,000.00
Pay, officers and	
employees...	\$486,000.00
Pay, skilled and	
unskilled la-	
bor	50,000.00
Material and in-	
cidental ex-	
penses.....	289,000.00
Sanitation.....	2,034,000.00
Pay, officers and	
employees...	\$766,000.00
Pay, skilled and	
unskilled la-	
bor.....	468,000.00
Material and in-	
cidental ex-	
penses.....	800,000.00
Reequipment Panama Railroad....	1,385,000.00
Redemption Panama Railroad bonds.	2,298,367.50
Total appropriation, year 1908.....	27,161,367.50
Total appropriations	79,608,568.58

EXPENDITURES.

Construction of Canal.....	\$29,782,682.60
Buildings	5,862,384.90
Panama waterworks, sewers, and paving.....	1,217,445.52
Colon waterworks, sewers, and paving.....	763,302.30
Panama Railroad advances.....	1,826,683.50
Total construction and engineering.....	\$39,452,498.82
Government of the Canal Zone.....	1,431,151.71
Buildings	388,101.40
Zone highways.....	499,023.70
Total Civil Government.....	2,318,276.81
Sanitation and hospitals.....	4,799,642.04
Buildings	750,565.96
Total sanitation.....	5,550,208.00

EXPENDITURES—Continued.

Loans to Panama Railroad.....	\$1, 631, 257. 34	
Purchase of Panama Railroad stock.....	157, 118. 24	
Purchase of Santa Rosa and Tivoli Hill prop- erties.....	56, 882. 96	
Balance due by laborers for their transporta- tion.....	210, 694. 45	
Bills rendered against Panama Railroad and others, but uncollected.....	463, 988. 52	
Collections from individuals and companies remitted to United States Treasurer as mis- cellaneous receipts.....	1, 949, 699. 91	
Labor furnished and material sold to Panama Railroad, Republic of Panama, commissions, employees, and other allied interests.....	1, 950, 952. 28	
Cash and uncollected bills at various hospitals.....	2, 312. 71	
Total miscellaneous.....	6, 422, 906. 41	
Less:		
Amount due individuals and companies for claims al- lowed but not paid on this date.....	\$505, 375. 18	
Amounts unpaid on pay rolls.....	1, 431, 746. 21	
June rolls.....	\$1,290,419.14	
Prior months.....	141,327.07	
Total amount of collections made and bills rendered and included in expendi- tures, which have been or will be deposited in United States Treasury as miscel- laneous receipts.....	2, 873, 146. 63	
Value of French material charged to the work or sold to individuals and com- panies which has been credited to purchase price of canal.....	648, 511. 65	
	<u>5, 458, 779. 67</u>	
Net miscellaneous.....		\$964, 126. 74
Total expenditures.....		48, 285, 110. 37
Balance available July 1, 1907.....		31, 323, 458. 21
Total.....		<u>79, 608, 568. 58</u>

EMPIRE, CANAL ZONE, October 9, 1907.

The CHAIRMAN. The total expenditure there is \$48,285,110.37. That was the total expenditure?

Mr. FAURE. Yes; exclusive of the original cost of the purchase.

Mr. MADDEN. The eight millions over and above the purchase of forty millions is the value of the plant?

Mr. FAURE. It does not include the forty millions of the purchase from the French Canal Company.

The CHAIRMAN. The total would make it eighty-eight millions. Are there any other statements, Mr. Faure, that you had in connection with your explanation?

Mr. FAURE. No, sir. The bookkeeping department keeps the records and prepares the statements.

ZONE REVENUES.

The CHAIRMAN. You spoke, Mr. Gay, of the account of the hotels and rents. Do you keep that account?

Mr. GAY. That is kept in the disbursing office.

The CHAIRMAN. The receipts and expenditures?

Mr. GAY. The whole thing is kept there and checked back from the coupons turned in, and the receipts are turned in by the hotels and establishments to the disbursing office.

The CHAIRMAN. Under the present operation of the hotels and restaurants here, can you state from memory, or have you a statement which you can give for the information of the committee, whether or not the restaurants and hotels are run at a profit, or just run on an even basis?

Mr. GAY. Mr. Jackson Smith has the accounts.

The CHAIRMAN. Are there any other accounts now in your department?

Mr. GAY. The disbursing officer also acts as treasurer of the Canal Zone, and handles all the accounts of the Canal Zone government in connection with the disbursing-office work. The same bookkeepers keep the books of the Canal Zone, and the work fits in with the work of the disbursing office.

The CHAIRMAN. You have not a separate force?

Mr. GAY. No, sir.

Colonel GOETHALS. In that connection I would like to state that the law contemplates the appointment of a Canal Treasurer, and provides only that the disbursing officer of the Commission shall act as treasurer when there is no treasurer appointed. I am taking steps now to have a treasurer appointed so as to comply with the law. His salary is fixed by law. The question was raised by the accounting officers of the Treasury when they came down here to look into the disbursements, stating that as the fund is used indiscriminately by the disbursing officer from Canal funds and Congressional appropriations, in case of any defalcation it would be difficult to get the bonding companies to pay the United States the necessary stipulated amount, because the disbursing officer could claim that it was from the Zone fund or the other fund, as the case might be, and they would insist on a literal compliance with the law; so that I expect to have a Canal Zone treasurer appointed. We are now waiting for the bond.

Mr. TAYLOR. Have you made any estimate to pay that salary?

Colonel GOETHALS. Two thousand five hundred dollars is provided for, payable from the Canal Zone revenues.

Mr. MADDEN. What are the aggregate annual revenues, and from what source do they come?

Mr. GAY. They have been running for one month at about \$20,000.

The CHAIRMAN. From what sources is the revenue received?

Mr. GAY. Water rents, and land rents, and things of that kind.

The CHAIRMAN. Have you a statement showing the amount received from each source?

Mr. GAY. Not here now.

The CHAIRMAN. You keep a separate account of the revenues received from each source?

Mr. GAY. Oh, yes; a separate set of books, and a separate account with the different revenues.

The CHAIRMAN. And you are required by law now to submit a statement of these revenues annually to Congress?

Mr. GAY. Yes.

The CHAIRMAN. How much were the revenues in the last fiscal year?

Mr. GAY. For the Canal Zone?

The CHAIRMAN. Yes.

Mr. GAY. We have a statement right here.

Mr. MADDEN. How many saloons are there in the district?

Mr. WOOD. There are 34.

Mr. MADDEN. The license fee is what?

Colonel GOETHALS. One thousand two hundred dollars a year.

Mr. MADDEN. Is there a collector for the Canal Zone?

Colonel GOETHALS. Yes.

Mr. MADDEN. Is there a sufficient amount of revenue collected from the various sources under the Canal Zone government to pay the expenses of the government?

Colonel GOETHALS. I believe not.

Mr. GAY. There is not.

Mr. MADDEN. How much does it run short?

Mr. TAYLOR. What does it cost to collect the revenue?

Mr. WOOD. We got up a statement in regard to that. We haven't got it here at the present moment.

The CHAIRMAN. Will we not get that to-morrow? And from whom?

Colonel GOETHALS. The head of the civil government would probably have it; but perhaps the treasurer's record would be more accurate.

The CHAIRMAN. Will you get up a statement of the Canal revenues up to July 1, 1907?

Mr. GAY. I can give it to you up to June 30, 1907. I have that right here. The postal receipts were \$68,443.48; internal revenue, \$22,304.26; miscellaneous, \$124,346.95, and from sales, \$936,940.19; rentals, \$324,631.36.

The CHAIRMAN. What rentals?

Mr. GAY. Land, buildings, and things of that character, and work done, \$176,676.73.

The CHAIRMAN. You must be mistaken about the item of rentals.

Mr. GAY. The first three that I read there are the only ones that refer to the Zone here—postal receipts, internal revenues, and miscellaneous. The others are deposited to the credit of miscellaneous receipts.

Mr. BRICK. Will you please repeat the amounts over again?

Mr. GAY. Postal revenues, \$68,443.48; internal revenues, \$22,304.26; miscellaneous, \$124,346.95; sales, \$936,940.19; rentals, \$324,861.36, and work done, \$176,676.73.

Mr. MADDEN. Are the buildings occupied by saloons required to pay rent?

Colonel GOETHALS. Yes.

Mr. GILLETT. What does the miscellaneous consist of?

Mr. GAY. Court fees and fines, \$6,155.87; police fines, \$1,170.72; customs fines and penalties, \$450; rents of land and buildings, \$891.68; miscellaneous, \$115,678.68.

Mr. GILLETT. What is that?

Mr. WOOD. That is municipal funds turned over on April 15, when the municipalities were turned over to the Zone. Those funds consist of slaughter taxes and various taxes; taxes for slaughtering pigs so much, and calves, and various forms of taxation which existed in the municipalities under the ordinances passed very much like those in the cities in the United States.

Mr. BRICK. But that included the saloon licenses?

Mr. WOOD. No, sir; they were taken up under internal revenue.

Mr. GILLETT. You mean the whole municipal income is turned over to the Zone government, or only certain portions?

Mr. WOOD. Under the act of March 4 of this year—

Colonel GOETHALS. The municipalities were abolished April 15, and all the funds that the municipalities had at the time of the abolition reverted to the treasurer of the Canal Zone.

Mr. WOOD. That was the accumulation from the beginning of the Canal work.

MISCELLANEOUS RECEIPTS PAYABLE TO THE UNITED STATES TREASURY.

The CHAIRMAN. You have one item of miscellaneous receipts payable to the Treasury of the United States direct, have you not?

Mr. GAY. Yes. That item of miscellaneous, deposited as miscellaneous receipts, is made up as follows: Telegraph and telephone service, \$2,592.47; hotel and boarding camps, \$911,884.70; laundry receipts, \$10,308.45; receipts from corrals, \$4,793.56; miscellaneous, \$43,782.81, and interest on loans, \$43,537.66, a total of \$1,016,899.65. But these large amounts were necessarily returned to the Treasury as miscellaneous receipts prior to the passage of the act of March 4, which permitted the Canal Commission to return to the appropriation the receipts from hotels and kitchens, and so forth, which prior to that time they had to turn in as miscellaneous receipts.

The CHAIRMAN. I think you had better, Mr. Gay, in order to get this matter straightened out and get it into the record in as intelligent a form as possible, make up a detailed and comprehensive statement of the receipts and the sources from which they are derived and the amount from each source, and what was done with the money, whether credited to the Commission or paid into the United States Treasury as miscellaneous receipts. Then we will get it straight.

Mr. GAY. Very well.

The CHAIRMAN. Now, are there any other accounts kept in your office?

Mr. GAY. That is all.

EMPLOYEES IN DISBURSING OFFICE (again).

The CHAIRMAN. In analyzing the estimates for the next fiscal year and observing the personnel, I observe that you estimate for 161 men—161 employees.

Mr. GAY. Yes.

The CHAIRMAN. And their average salary is \$1,500. One thousand five hundred dollars is the average salary of the force in the disbursing office. Is not that considerably above the average salary paid to the clerical force in any of the other departments?

Mr. GAY. Down here?

The CHAIRMAN. Yes; down here.

Mr. GAY. I understand not.

The CHAIRMAN. What salary does the chief of the disbursing office receive?

Mr. GAY. Six hundred and fifty-five dollars a month, out of which he pays for his bond.

The CHAIRMAN. His salary is estimated for the next fiscal year at \$10,000.

Mr. GAY. Yes, sir.

The CHAIRMAN. He made the estimate himself, did he?

Mr. GAY. It was made under his direction. He is under a \$200,000 bond, and, as I stated, out of his salary he is obliged to pay for his bond.

The CHAIRMAN. What does his bond amount to?

Mr. GAY. The premium on it is \$360 a year.

The CHAIRMAN. He is receiving now \$7,500, net?

Mr. GAY. Seven thousand five hundred dollars, net.

COST OF DISBURSEMENTS.

When you were down in the disbursing office the other day the question was raised as to the cost of disbursements. The percentage of cost in the fiscal year 1907 was 1.04 per cent. The disbursements were \$15,513,389.21. The expenses of the office on the Isthmus making that disbursement were \$155,724.36. Consequently the percentage of the expense of payment was 1.04 per cent, and the total payments for the first quarter of the fiscal year 1908 were \$5,714,160.07. The expenses of the office during that time were \$53,228.67, the percentage being ninety-one one-hundredths. The payments during the month of October this year were \$2,101,532.50. The expenses of the office in that time were \$18,928.11, making practically eight-tenths of 1 per cent.

Mr. MADDEN. That would be nine-tenths, would it not?

Mr. GAY. Not according to my figures.

Mr. MADDEN. You have not got it right.

Mr. WOOD. It figures out 0.081.

Mr. GAY. The payments were \$2,101,532.50. The expenses were \$18,928.11.

Mr. MADDEN. Two into eighteen is nine.

Mr. GAY. Yes; I stand corrected.

Mr. MADDEN. Of course.

Mr. GAY. It is nine-tenths.

The CHAIRMAN. What did you say the total expense of the disbursing officer was in 1906?

Mr. GAY. I have not 1906. I have 1907.

The CHAIRMAN. The fiscal year 1907.

Mr. GAY. \$155,724.36.

The CHAIRMAN. That is \$100,000 less than you estimate the expense will be for the fiscal year 1909.

Mr. GAY. Yes. Of course the total disbursements are increasing in greater proportion, and in addition to that the Executive Order of August 15, 1907, turned over to the disbursing office the property keeping and the cost keeping that was formerly in the Examiner of Accounts' office.

The CHAIRMAN. Before the Executive Order, you had no Examiner of Accounts' office?

Mr. GAY. We had a local auditor down here. He had that work.

The CHAIRMAN. How many men have been added to the force in consequence of the Executive Order?

Mr. GAY. That Executive Order directed the time inspectors to be turned over to the Examiner of Accounts, and the trade was somewhere near even. We traded about 48 men and got about that many, but the men we got were higher-priced men and doing a higher class of work.

Following are documents filed by Mr. Gay and by Colonel Goethals:

[Office of Disbursing Officer, Empire, Canal Zone, Circular No. 5. Edward J. Williams, disbursing officer. Approved: Geo. W. Goethals, Chairman.]

Definitions of expenditures accounts, effective July 1, 1907.

DEPARTMENT OF CIVIL ADMINISTRATION.

No. 501. Administration.—To this account will be charged the salaries of the member of the Commission in charge of the Government of the Canal Zone, the salaries and wages of the Executive Secretary, the Treasurer of the Canal Zone government, the auditor of the Canal Zone Government, their clerks and attendants, their traveling expenses, the cost of furniture and fixtures, stationery, printing, and other office supplies, cost of lighting and care of office, law books and other library expenses connected with the offices, and incidental expenses for which no other provision is made.

No. 502. Judiciary.—*A. Supreme and Circuit Courts.*—To this account will be charged the salaries and allowances of the Chief Justice of the Supreme Court, Judges of the Circuit Courts, their assistants, clerks, and attendants, bailiffs, and other court officers, their traveling expenses, fees and salaries paid witnesses, the cost of court furniture and fixtures, law books, stationery, printing, and supplies, cost of lighting and care of court rooms and other rooms and buildings occupied by court officials, and incidental expenses for which no other provision is made.

B. District Courts.—To this account will be charged the salaries and allowances of the Judges of the District Courts, their assistants, clerks, and attendants, bailiffs, and other court officers, their traveling expenses, fees and expenses paid witnesses, the cost of court furniture and fixtures, law books, stationery, printing and supplies, cost of lighting and care of court rooms and other rooms and buildings occupied by court officers, and incidental expenses for which no other provision is made.

C. Prosecuting Attorney.—To this account must be charged the salaries and allowances of the prosecuting attorney, his assistants, clerks, and attendants, their traveling expenses, cost of furniture and fixtures, stationery, printing and other office supplies, cost of lighting and care of offices, law books and other library expenses connected with the office, and incidental expenses for which no other provision is made.

No. 503. Revenues and Posts.—*A. Division of Revenues.*—To this account will be charged a proportion of the salary of the Collector of Revenues and Director of Posts, the salaries of Deputy Collectors of Revenue, District Tax Collectors, their clerks, collectors, and attendants, their traveling expenses, the cost of

office furniture and fixtures and stationery and printing, cost of lighting and care of offices, and incidental expenses for which no other provision is made.

B. Division of Posts.—To this account will be charged a proportion of the salary of the Collector of Revenues and Director of Posts, his Clerks and attendants, the salaries of the postmasters and their clerks, railway postal clerks and other employees and attendants of the Postal Service, the cost of transporting the mails, of office furniture, fixtures, and supplies, stationery and printing, cost of lighting and care of offices, and incidental expenses for which no other provision is made.

C. Division of Customs.—To this account will be charged a proportion of the salaries of the Collector of Revenues and Director of Posts, his clerks and attendants, and the salary of all persons engaged in the custom service, their traveling expenses, the cost of furniture, fixtures, office supplies, stationery and printing, the cost of lighting and care of offices, and incidental expenses for which no other provision is made.

D. Division of Lands and Buildings.—To this account will be charged a proportion of the salaries of the Collector of Revenues and Director of Posts, his clerks and attendants, their traveling expenses, of the cost of furniture, fixtures, office supplies, stationery and printing, and other incidental expenses, the salaries and expenses of Collectors engaged in the collection of rents, but does not include the salaries of collectors engaged in collections of rent of property belonging to municipalities, which are chargeable to account No. 503 A.

E. Division of Estates.—To this account will be charged a proportion of the salaries and wages of the Collector of Revenues and Director of Posts, of his clerks and attendants, of their traveling expenses, of the cost of furniture, fixtures, office supplies, stationery and printing, and incidental expenses for which no other provision is made.

No. 504. Education.—To this account will be charged salaries and compensation of all officers, their clerks and attendants who are engaged in superintending the Zone School System, the salaries and allowances of teachers and their assistants, their traveling expenses, rent, light, and care of schoolhouses, office and school furniture, fixtures and supplies, stationery and printing, and incidental expenses for which no other provision is made.

No. 505. Police and prisons.—To this account will be charged the pay and allowances of the Chief of Police, his Lieutenants, Sergeants, detectives, policemen, clerks, and attendants, either at the Headquarters or at stations on the Zone; of Wardens, Guards, and other employees in and about Penal Institutions, their traveling expenses, transportation and subsistence of prisoners awaiting trial and in penal institutions; all furniture, fixtures, and supplies, including equipment, uniforms, sidearms, handcuffs; proportion of expenses of corrals, care of offices and buildings, and incidental expenses for which no other provision is made.

No. 506. Fire protection.—To this account will be charged the salaries and expenses of the Fire Chief and his personnel, allowances to volunteer firemen, the cost of fire apparatus, such as fire engines, horses, hook and ladder trucks, hose carts, hose, fire extinguishers, hand grenades, and all other equipment used as protection from fire.

No. 507. Military protection.—To this account will be charged the expenses of the Commission for protection by the United States Army and Navy forces, including transportation and subsistence of troops, the cost of constructing and maintaining arsenals, forts, and other like defenses, and the miscellaneous expenses of military protection for which no other provision is made.

No. 508. Maintenance and operation, waterworks and sewers, Panama.—To this account will be charged a proportion of the salaries of the Superintendent of Public Works, of his clerks and attendants, of their traveling expenses, of his office furniture, fixtures, and supplies, including stationery and printing, and of other incidental expenses, and expenditures for labor and materials used in the maintenance and operation of the waterworks and sewers within the limits of the City of Panama.

No. 509. Maintenance and operation, waterworks and sewers, Colon.—To this account will be charged a proportion of the salaries of the Superintendent of Public Works, his clerks and attendants, of their traveling expenses, of his office furniture, fixtures, and supplies, including stationery and printing, and of other incidental expenses, and all expenditures for labor and material used in the maintenance and operation of the waterworks and sewers within the limits of the City of Colon.

No. 510. Repairs and maintenance of pavements, Panama.—To this account will be charged a proportion of the salaries of the Superintendent of Public Works, of his clerks and attendants, of their traveling expenses, of his office furniture, fixtures, and supplies, including stationery and printing and other incidental expenses, and all expenditures for labor and material used in the maintenance and repairs of the pavements within the limits of the City of Panama.

No. 511. Repairs and maintenance of pavements, Colon.—To this account will be charged a proportion of the salaries of the Superintendent of Public Works, of his clerks and attendants, of their traveling expenses, of his office furniture, fixtures, and supplies, including stationery and printing and other incidental expenses, and all expenditures for labor and material used in the maintenance and repairs of the pavements within the limits of the City of Colon.

No. 512. Miscellaneous Zone public works.—To this account will be charged all expenditures of labor and material used in the operation of miscellaneous Zone Public Works, such as slaughterhouses, markets, lights, etc. This is not intended to cover expenditures for public works, for which specific provision has been made elsewhere, as in Accounts 553 and 556.

DEPARTMENT OF SANITATION.

No. 520. Administration.—To this account will be charged the salary and allowances of the Commissioner in charge of this department and his assistants, their clerks and attendants, and all employees whose salaries and wages are not directly chargeable to Accounts 521, 522, 523, and 524, their traveling expenses, office furniture, fixtures, and supplies, including stationery and printing, lighting, and care of offices, and incidental expenses for which no other provision has been made.

No. 521. Hospitals and asylums.—A. Administration.—To this account should be charged the salaries and allowances of the Director of Hospitals, his assistants, clerks, and attendants, their traveling expenses, cost of lighting and care of offices, furniture, fixtures, and office supplies, including stationery and printing and incidental expenses for which no provision is otherwise made.

B. Ancon Hospital.—To this account should be charged the salaries and wages of the superintendent, assistant superintendent, physicians, internes, pharmacists, all employees of the laboratory, nurses, ward maids, clerks, messengers, and other employees in and about the hospital, their traveling expenses, expenses of carts owned or hired, ambulances, carriages, and other vehicles not attached to corrals necessary to the conduct of the hospital, cost of embalming fluid and of burying the dead, and the expenses of conducting the laundry; the cost of office furniture and fixtures, equipment—such as beds and bedding, mattresses, springs, cots, tables, chairs, surgical, laboratory, and other scientific instruments, drugs and medicines, soap, fuel, disinfectants, medical books, the subsistence of employees and patients, and incidental expenses for which no provision is otherwise made.

C. Colon Hospital.—To this account should be charged the salaries and wages of the superintendent, assistant superintendent, physicians, internes, pharmacists, nurses, ward maids, clerks, messengers, and other employees in and about the hospital, their traveling expenses, expense of carts owned or hired, ambulances, carriages, and other vehicles not attached to corrals necessary to the conduct of the hospital, cost of embalming fluid and of burying the dead, and the expense of conducting the laundry; the cost of office furniture and fixtures, equipment, such as beds and bedding, mattresses, springs, cots, tables, chairs, surgical and other scientific instruments, drugs and medicines, soap, fuel, disinfectants, medical books, the subsistence of employees and patients, and incidental expenses for which no provision is otherwise made.

D. Other hospitals and dispensaries.—To this should be charged the salaries and wages of the superintendents, assistant superintendents, physicians, internes, pharmacists, nurses, ward maids, clerks, messengers, and other employees in and about the hospital, their traveling expenses, expense of carts owned or hired, ambulances, carriages, and other vehicles not attached to corrals necessary to the conduct of the hospital, cost of embalming fluid and of burying the dead, and the expense of conducting the laundry; the cost of office furniture and fixtures, equipment, such as beds and bedding, mattresses,

springs, cots, tables, chairs, surgical and other scientific instruments, drugs and medicines, soap, fuel, disinfectants, medical books, the subsistence of employees and patients, and incidental expenses for which no provision is otherwise made.

No. 522. Quarantine.—To this account will be charged the salaries and allowances of the Chief Quarantine Officer and his assistants, clerks, and attendants, of the officers in charge of quarantine stations, their assistants, clerks, and attendants, including the personnel of the quarantine station, their traveling expenses, the salaries and allowances of the crews of launches and other craft in the quarantine service, the cost of office furniture and fixtures, office supplies, stationery and printing, instruments, drugs, medicines, etc., cost of lighting and care of offices and buildings used in this service, and incidental expenses for which no other provision is made.

No. 523. Sanitation, Panama and Colon.—To this account will be charged the salaries and allowances of the Health Officers at Panama and Colon, their assistants, clerks, and attendants, salaries and wages of foremen and laborers engaged in street cleaning and in removing garbage and other refuse, of officers and employees engaged in the work of preventing and exterminating contagious diseases, and of disinfecting and fumigating, and their traveling expenses, cost of office furniture, fixtures, and supplies, stationery and printing, disinfectants and disinfecting apparatus, all material and transportation of same used in the work of sanitation, and incidental expenses for which no other provision is made. A separate account will be kept for Colon and Panama.

No. 524. Zone sanitation.—To this account will be charged salaries and allowances of the Chief Sanitary Inspector, his assistants, inspectors, and employees engaged in sanitary work on the Canal Zone and outside the cities of Colon and Panama, their traveling expenses, cost of office furniture, fixtures, and supplies, stationery and printing, disinfectants and disinfecting apparatus, all supplies and material used with expense of transporting same, forage for animals used by inspectors or allowances made for same, and incidental expenses for which no other provision is made; also the expense of labor, material, and supplies used in connection with the maintenance of Zone cemeteries.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING, CANAL CONSTRUCTION.

No. 530. Administration.—To this account will be charged the salary of the Office Engineer in the Office of the Chief Engineer, the Division Engineer in charge of Meteorology and River Hydraulics, draftsmen, map makers, clerical force, attendants, and all employees engaged in the general supervision of canal construction, their traveling expenses, cost of office furniture, fixtures, and supplies, stationery and printing, cost of lighting, care of offices, and incidental expenses for which no other provision is made.

No. 531. Dry excavation.—To this account will be charged a proportion of the salary of the Member of the Commission in charge of the work, of Division Engineers and Assistants, clerical forces, superintendents of transportation, assistant superintendents of transportation, train masters and their traveling expenses, engineers, firemen, conductors, brakemen, switchmen, switch tenders, roundhouse men, steam-shovel engineers, firemen and crane men, drill runners and helpers, laborers employed in grading, laying, and surfacing track and in the construction of various structures, such as bridges, shops, storehouses, and roundhouses that are built by the division engineer and used in connection with dry excavation. There will also be included the cost of explosives used in loosening earth and rock, the operation of air and steam drills, repairs and renewals of pipe line used to convey compressed air from the compressors to the machinery operated thereby, fuel oil, waste, steam-shovel, and locomotive supplies necessary for the operation of trains, a proportion of the superintendence and other expenses in shop expense, and the cost of the repairs to all equipment used in this class of work, also the small tools and instruments used in connection with the operations hereinbefore mentioned, and all expenses in connection with excavation, transportation, and disposition of the waste from the canal prism for which no other provision has been made.

No. 532. Dredging excavation.—To this account will be charged a proportion of the salary of the Member of the Commission in charge, the salaries of his assistants, division engineers, clerical forces, and attendants, and their traveling expenses, the wages of marine and dredge engineers, foremen, captains,

mates, sailors, and all laborers used in dredging operations. It will also include the cost of material and supplies used on the dredges and necessary tenders, such as tugs, scows, closets, and the supplies necessary for the operation of such marine equipment, including fuel, oil, waste, small tools, rope, cable, etc., a proportion of the superintendence and other expenses; in Shop Expense and the cost of repairs to all equipment used in this class of work, and all incidental expenses for which no other provision has been made.

No. 533. Gatun dam and spillway.—To this account will be charged a proportion of the salary of the member of the Commission in charge, his assistants, division engineers, clerical forces, attendants, and wages of laborers employed in building the Gatun dam and spillway. It will also include the cost of clearing the dam site, filling, lands and buildings purchased, supplies, furniture, and fixtures used in division offices, a proportion of the superintendence and other expenses in Shop Expense, and the cost of repairs to all equipment used in this class of work, and all incidental expenses for which no other provision has been made.

No. 534. Gatun Locks.—To this account will be charged a proportion of the salary of the member of the Commission in charge, his assistants, division engineers, clerical forces, attendants, and the wages of all laborers employed in the construction of Gatun Locks. It will include the cost of excavating, disposition of the waste, and the operation of all machinery in connection therewith, masonry, gates, and their operating machinery, lands and buildings purchased to provide the site of the locks, office supplies, furniture, fixtures, stationery and printing, a proportion of the superintendence and other expenses in Shop Expense, and the cost of repairs to all equipment used in this class of work, and all incidental expenses for which no other provision has been made.

No. 535. La Boca dam and spillway.—To this account will be charged a proportion of the salary of the member of the Commission in charge, his assistants, division engineers, clerical forces, attendants, and the wages of all laborers employed in the construction of La Boca dam. It will also include the cost of clearing the dam site, filling, land and buildings purchased, supplies, furniture, fixtures, stationery and printing used in the division offices, a proportion of the superintendence and other expenses in Shop Expense, and the cost of repairs to all equipment used in this class of work, and all incidental expenses for which no other provision has been made.

No. 536. La Boca Locks.—To this account will be charged a proportion of the salary of the member of the Commission in charge, his assistants, division engineers, clerical force, attendants, and the wages of the laborers engaged in the construction of La Boca Locks. It will include the cost of excavation, disposition of the waste, and the operation of the machinery used in connection therewith, the masonry, gates and their operating machinery, lands and buildings purchased to provide the site of the locks, office supplies, furniture, fixtures, stationery and printing, a proportion of the Superintendence and other expenses in Shop Expense, and the cost of repairs to all equipment used in this class of work, and all incidental expenses for which no other provision has been made.

No. 537. Pedro Miguel dam.—To this account will be charged a proportion of the salary of the member of the Commission in charge, his assistants, division engineers, clerical forces, attendants, and the wages of the laborers engaged in the construction of Pedro Miguel dam. It will also include the cost of clearing the dam site, filling, purchase of lands and buildings, supplies, furniture, fixtures, and stationery and printing used in the division offices, a proportion of the Superintendence and other expenses in Shop Expense, and the cost of repairs to all equipment used in this class of work, and all incidental expenses for which no other provision has been made.

No. 538. Pedro Miguel Locks.—To this account will be charged a proportion of the salary of the member of the Commission in charge of this work, his assistants, division engineers, clerical forces, attendants, and the wages of the laborers engaged in the construction of the Pedro Miguel Locks. It will include the cost of excavation, disposition of the waste, and operation of the machinery used in connection therewith, masonry, gates and their machinery, lands and buildings purchased to provide a site for the locks, office supplies, stationery and printing, furniture and fixtures, a proportion of the Superintendence and other expenses in Shop Expense, and the cost of the repairs to all equipment used in this class of work, and all incidental expenses for which no other provision has been made.

DIVISION OF MUNICIPAL ENGINEERING.

No. 550. Superintendence and other expenses.—To this account will be charged the salaries and wages of the Municipal Engineer, assistant engineers when working under the Municipal Engineer and not assigned to specific work to which their time may be charged, their clerks and attendants, their traveling expenses, the cost of furniture, fixtures, office supplies, stationery, printing, lighting, and care of offices, and such other expenses as are incidental to this office and are not charged to any specific work carried on under the supervision of the Municipal Engineer.

No. 551. Waterworks and sewers, Panama.—To this account will be charged the salaries and wages and allowances of officers, clerks, laborers, and their traveling expenses, the cost of all material, including water pipes, sewer pipe, cement, all plumbing materials, lumber, etc., cost of transportation of men and animals and materials, the tools and supplies used, and all other incidental expenses connected with the construction of the waterworks and sewers within the limits of the City of Panama.

No. 552. Waterworks and sewers, Colon.—To this account should be charged the salaries, wages, and allowances of officers, clerks, and laborers, and their traveling expenses, the cost of all materials, including water pipe, sewer pipe, cement, all plumbing materials, lumber, etc., the cost of transportation of men and materials, the tools and supplies used, and all other incidental expenses connected with the construction of the waterworks and sewers within the limits of the City of Colon.

No. 553. Zone waterworks and sewers.—To this account should be charged all expenditure for labor and material used in constructing, operating, and maintaining waterworks and sewers on the Zone, including reservoirs, main pipe line and connections to Commission buildings, but includes no work in connection with the waterworks and sewers within the limits of the Cities of Panama and Colon.

No. 554. Paving Panama.—To this account should be charged all expenditures for labor and material used in paving the streets of Panama, such as paving, filling, and grading, and includes the wages of engineers directly in charge of the work, the cost of transportation of men and materials, and incidental expenses for which no other provision is made. This account does not include repairs and maintenance of paved streets, which are chargeable to Account No. 510.

No. 555. Paving Colon.—To this account will be charged all expenditures for labor and materials used in paving the streets of Colon, such as paving and filling and grading, and includes the wages of engineers directly in charge of the work, the cost of transportation of men and materials, and incidental expenses for which no other provision is made. This account does not include repairs and maintenance of paved streets, which are chargeable to Account No. 511.

No. 556. Zone roadways.—To this account should be charged all expenditures for labor and material used in the construction, repair, and maintenance of roads outside the Cities of Panama and Colon, and includes the cost of right of way that may be purchased in connection therewith, the cost of operation of rock crushers, the use of borrow pits, the transportation of men and material, the cost of tools and machinery used in the work, and incidental expenses for which no other provision is made.

No. 557. Miscellaneous.—To this account will be charged all expenditures of labor and material used in the construction of recreation grounds, such as tennis courts and other similar work, which is not covered by the other definitions under the head of "Municipal Engineering." Charges to this account must not be made without written authority of the Supervisory Engineer.

DIVISION OF BUILDING AND CONSTRUCTION.

No. 560. Superintendence and other expenses.—To this account should be charged salaries and allowances for the Master Builder, his assistants, architects, draftsmen, clerical forces in his office, their traveling expenses, cost of office furniture and fixtures, supplies, stationery and printing, engineering instruments used in surveys, cost of lighting and care of office, and incidental expenses for which no other provision is made.

No. 561. Construction of buildings.—To this account will be charged the salaries and wages, traveling expenses of superintendents, clerical forces, me-

chanics, laborers, as well as the cost of material and supplies, and the cost of transportation of the laborers, material, and supplies used in the construction and building, and incidental expenses for which no other provision is made.

No. 562. Repairs of buildings.—To this account will be charged the salaries and wages, traveling expenses of superintendents, clerical forces, mechanics, and laborers, and the cost of material and supplies, the cost of transportation of the laborers, material, and supplies used in the repairs of buildings, and incidental expenses for which no other provision is made.

DEPARTMENT OF LABOR, QUARTERS, AND SUBSISTENCE.

No. 580. Administration.—This account will be charged with the salaries of the manager, assistant manager, superintendents, their clerks and attendants, their traveling expenses, the cost of lighting and care of offices, office furniture and fixtures, stationery, printing, and miscellaneous supplies, and incidental expenses for which no other provision is made, but does not include any part of the expense of operating hotels and boarding camps.

No. 581. Recruiting.—To this account will be charged the transportation of employees from the United States and other countries to and from the Isthmus; the salaries and wages of labor agents, their clerks, attendants, and other employees, their traveling expenses, the cost of office supplies and stationery, the rent of offices, the cost of subsistence furnished recruits, and all expenses incidental to securing labor for which no other provision is made.

No. 582. Quarters.—To this account will be charged the cost of furniture used in quarters, such as bedsteads, cots, tables, chairs, mattresses, dressers, wardrobes, settees, stands, lamps, water sets, etc., and supplies, such as oil, electric light and fixtures therefor, and the salaries and wages of employees engaged in caring for and cleaning the quarters and their adjacent grounds.

No. 583. Hotel messes and kitchens—A. Supplies and equipment.—To this account will be charged cost of supplies and equipment of every description purchased for use in the operation of hotels, messes, and kitchens. At the close of the month this account will be credited with the value of supplies consumed and the depreciation of equipment for charge to account No. 583 B.

B. Operation hotel messes and kitchens.—To this account will be charged the cost of operating the hotels, messes, and kitchens, and will include the salaries and wages of officers, clerks, attendants, and hotel employees, the cost of subsistence issued, the depreciation of equipment, with fuel used, the charges against hotel messes and kitchens for work done for them by other departments, such as local transportation, switching charges, and freight charges assessed by the Panama Railroad for transportation of supplies and equipment, the expense of laundry work, and incidental expenses for which no other provision is made; supplies consumed and depreciation of equipment will be credited to Account No. 583 A.

PLANT ACCOUNT.

No. 590. Rolling stock.—To this account will be charged the cost of all locomotives and cars used for transportation purposes, and includes the cost of erection and placing in service on the Isthmus. It does not include hand cars and push cars, and velocipedes used in the construction and maintenance of tracks.

No. 591. Excavating machinery.—To this account will be charged the cost of steam shovels, air-compressing plants, including the attendant pipe lines, spreaders, unloaders, cable plows, pile drivers, track shifters, etc., and other large machinery and tools used for excavating purposes, together with the cost of their erection and placing in service on the Isthmus.

No. 592. Floating equipment.—To this account will be charged the cost of all steamships, launches, dredges, tugs, clapnets, barges, scows, floating pile drivers, cranes, derricks, and other floating equipment costing \$500 and upward.

No. 593. Shop and other machinery and tools.—To this account will be charged the cost of new shops and other machinery and tools costing as much as \$300 for each tool or machine, including the cost of erection, and any other items of expense entering into the original cost.

No. 594. Rails and fastenings.—To this account will be charged the cost of all new and secondhand and French rails that are used in the construction of main tracks and yards at any point either inside or outside of the canal prism, except

on docks and wharves. It also includes the cost of all track fastenings, such as angle bars, fish plates, tie plates, track bolts, spikes, etc., and all frogs, switches, and similar material.

No. 595. Ties.—To this account will be charged the cost of all cross-ties, switch ties, bridge ties, both new, secondhand, and French, that are used in the construction of main tracks, side tracks, and yards at any point either inside or outside the canal prism, except on docks and wharves.

No. 596. Lands purchased.—To this account will be charged the cost of all lands purchased, except lands purchased for actual canal construction purposes and to be overflowed. There will be included any extra or special expense in connection therewith not chargeable to offices and divisions as otherwise provided.

No. 597. Docks and wharves.—To this account will be charged all expenditures for labor and material used in the construction and repairs of docks and wharves for permanent service, including the tracks laid thereon, together with all machinery, tools, rope, etc., that may be used in the construction of the same, except where the cost of each tool or machine is \$300 or more.

No. 598. Construction of electric-light plants.—To this account will be charged the cost of all labor and materials used in construction of electric-light plants, including poles and wires, the cost of engines, dynamos, boilers, and all other machinery; and such other expenses as are incidental to the construction and equipment of the plants.

MISCELLANEOUS.

No. 600. General expenses Isthmian Canal Commission.—To this account will be charged the salary of the Chairman of the Commission and Chief Engineer, the expenses of the Committee on Engineering, special committees on engineering, and special commissions. The charges will include salaries and wages of committeemen, commissioners, clerks, attendants, office furniture, fixtures, and supplies, including stationery and printing, their traveling expenses, office rent, light and care of offices and incidental expenses for which no other provision is made. This account will also be charged with the cost of transporting funds to and from the United States, the premium paid for the exchange of United States and Panaman money, and other local money necessary for the payment of labor, material, and supplies, and any interest, discount, or other charge for securities held or given by the Isthmian Canal Commission; the salaries and wages of secretaries and attendants at clubhouses, the furniture and fixtures contained therein, and any other expenses in connection with their operation.

No. 602. Disbursing officers.—To this account will be charged the expense of the disbursing officers, including salaries and wages of office clerks, attendants and their traveling expenses, office supplies, furniture, fixtures, stationery and printing, light and care of offices, and incidental expenses for which no other provision is made.

No. 602. Examiners of Accounts.—To this account will be charged expenses of the office of Examiner of Accounts and will include salaries and wages of Examiners, clerks, attendants and their traveling expenses, office supplies, furniture, fixtures, stationery and printing, light and care of offices, and incidental expenses for which no other provision is made.

No. 603. Transportation on the Isthmus.—To this account will be charged all expenditures for labor and material used in the operation of corrals and the expense of transportation furnished employees by the Panama Railroad Company on the Isthmus. These charges will include salaries and wages of Corral Masters, hostlers, harness makers, wagon makers, blacksmiths, teamsters, coachmen, and all other necessary labor. The cost of wagons, drays, carriages, harness, forage, animals and other necessary equipment, and incidental expenses for which no other provision is made.

No. 604. Panama Railroad second main track.—To this account will be charged the cost of building the second main track of the Panama Railroad, including the salaries and wages of engineers, their assistants, clerical forces and attendants; laborers, the cost of office furniture and fixtures, supplies, including stationery and printing, instruments, drawing paper, etc.; the cost of right of way and station grounds, grading, bridges, trestles, culverts, rails and fastenings, frogs and switches, ballast, track laying and surfacing, crossing signs and cattle guards, and incidental expenses for which no other provision is made.

No. 605. Relocation of the Panama Railroad.—To this account will be charged the expenses incurred in relocating the Panama Railroad, including salaries

and wages, the cost of engineering, right of way and station grounds, real estate, grading, bridges, trestles, culverts, ties, rails and fastenings, frogs and switches, ballast, track laying and surfacing, fencing right of way, crossing signs, cattle guards and telegraph lines, station buildings and fixtures, shops, roundhouses, turntables, machinery and tools, water stations, fuel stations, miscellaneous structures, and the usual expenses incidental in building a railway.

No. 606. Telegraph and telephone.—To this account will be charged all expenditures for labor and material used in the construction, maintenance, and operation of all telegraph and telephone lines used in facilitating business on the Isthmus, together with any amount paid to the Panama Railroad Company for services of this character.

No. 607. Moving and care of French material and equipment.—To this account will be charged all expenditures for labor and material used in moving and caring for French material and equipment, except such as may be necessary to prepare it for use, or cars for it after it is ready for issue. It includes the wrecking and moving of excavators, dredges, locomotives, etc., from the canal site merely to get them out of the way or concentrate the material at central points; also the care of marine and other equipment, to keep it afloat and watch it, and other incidental expenses of like character.

No. 608. Construction and furnishing the Santo Tomas Hospital.—To this account will be charged the cost of repairing, renewing, and enlarging and equipping Santo Tomas Hospital, but does not include any of the expense of operation, which should be charged to Account No. 521.

No. 609. Operation and repairs of electric-light plants.—To this account will be charged labor and material necessary for the maintenance and operation of electric-light plants, including the wages of superintendents, clerks, attendants, engineers, firemen, linemen, and all laborers; the cost of repairs and renewals of machinery and tools; the cost of new tools and machinery, not exceeding in value \$300 for each tool or machine, including small hand tools and such other incidental expenses for which no provision is otherwise made.

ISTHMIAN CANAL COMMISSION—OFFICE OF THE LOCAL AUDITOR, EMPIRE, CANAL ZONE.

Monthly balance sheet for June, 1907.

[Total to June 30, 1907.]

Receipts:

Appropriations by Congress.....	\$102, 447, 201. 08
Audited Accounts Receivable—	
Audit Accounts Receivable—	
Revenues of the Canal Zone—	
Postal (Exhibit 1).....	68, 443. 48
Internal (Exhibit 2).....	22, 304. 26
Miscellaneous (Exhibit 3).....	124, 346. 95
Receipts of United States Funds—	
Sales (Exhibit 4).....	936, 940. 19
Rentals (Exhibit 5).....	324, 861. 36
Work Done (Exhibit 6).....	176, 676. 73
Miscellaneous (Exhibit 7).....	1, 016, 899. 65
Subsidies and Dividends (Exhibit 8).....	419, 945. 00
Total Receipts.....	105, 537, 618. 70

Disbursements:

Audited Accounts Payable—	
Expenditures.....	41, 274, 149. 62
Material and Supplies.....	3, 734, 297. 16
Cost of Purchase, Handling, and transportation of Material and Supplies.....	563, 869. 62
Purchase Rights New Panama Canal Company.....	39, 351, 488. 35
Purchase Territorial Rights in Canal Zone.....	10, 000, 000. 00
Purchase Panama Railroad Stock.....	157, 118. 24
Loans to Panama Railroad Company.....	1, 631, 257. 34
Advances to Panama Railroad Company.....	1, 826, 683. 50
Total Disbursements.....	98, 538, 863. 83

Assets:

Balance of Available Cash (Exhibit 9)-----	\$4, 708, 158. 41
Audited Accounts Receivable-----	470, 549. 44
Individuals and Companies-----	1, 950, 952. 28
Receipts deposited in United States Treasury (Exhibit 10)	1, 932, 357. 50
Canal Property—	
Rights of Way and Franchises (Exhibit 11)-----	49, 351, 488. 35
Panama Railroad Stock owned (Exhibit 12)-----	157, 118. 24
Material and Supplies (Exhibit 13)-----	4, 298, 166. 78
Classified Expenditures—	
General Administration (Exhibit 14)-----	1, 403, 557. 68
Law and Government (Exhibit 15)-----	1, 430, 581. 60
Sanitation, Hospitals, and Asylums (Exhibit 16)-----	4, 360, 875. 43
Construction and Engineering (Exhibit 17)-----	15, 594, 834. 17
Plant (Exhibit 18)-----	18, 484, 300. 74
Stamp Account-----	7, 217. 60
Postmaster's Stamp Account-----	10, 889. 88
Postmaster's Money-Order Account-----	8, 813. 20
Hospital Revenues-----	2, 859. 61
Advances to Panama Railroad Company-----	1, 826, 683. 50
Loans to Panama Railroad Company-----	1, 631, 257. 34
Water and Sewer Rentals and Repairs collectible-----	158. 34
Court Collections-----	101. 10
Sundry Accounts-----	214, 218. 56
Collecting Officer, Tom M. Cooke-----	168. 63
Total assets-----	107, 847, 308. 38

Liabilities:

Appropriations by Congress (Exhibit 19)-----	102, 447, 201. 08
Audited Accounts Payable-----	1, 982, 410. 64
Unpaid Salaries and Wages-----	72, 628. 68
Receipts, Miscellaneous Sources (Exhibit 20)-----	3, 000, 417. 62
Postal Money-Order Funds-----	247, 606. 22
Unearned Postage-Stamp Revenues-----	6, 548. 97
Funds of Deceased Employees-----	495. 17
Total liabilities-----	107, 847, 308. 38

Exhibit 1.—Postal Revenues:

Sale of Stamps-----	58, 513. 88
Money-Order Fees-----	9, 920. 60
Total-----	68, 443. 48

Exhibit 2.—Internal Revenues:

Distilling Licenses-----	17, 723. 28
Miscellaneous-----	4, 580. 98
Total-----	22, 304. 26

Exhibit 3.—Miscellaneous Revenues:

Court Fees and Fines-----	6, 155. 87
Police Fines-----	1, 170. 72
Customs, Fines and Penalties-----	450. 00
Rent of Land and Buildings-----	891. 68
Miscellaneous-----	115, 678. 68
Total-----	124, 346. 95

Exhibit 4.—Sales of:

Property-----	712, 171. 05
French Material and Equipment-----	81, 612. 43
Water-----	255. 43

Exhibit 4.—Sales of—Continued.

Shares of Panama Railroad Stock to Directors.....	\$1,300.00
Mess Account.....	50,587.73
Receipts from Pay Patients.....	78,375.77
Quarantine Subsistence.....	12,637.78
Total	936,940.19

Exhibit 5.—Rentals:

Rent of Land and Buildings.....	47,036.32
Rent of Equipment.....	221,791.55
Panama Water and Sewer Rentals.....	19,238.20
Colon Water and Sewer Rentals.....	1,346.00
Miscellaneous	35,449.29
Total	324,861.36

Exhibit 6.—Work Done.

Labor furnished Panama Railroad Company.....	155,212.55
Other labor furnished.....	21,464.18
Total	176,676.73

Exhibit 7.—Miscellaneous:

Telegraph and Telephone Service.....	2,592.47
Hotel and Boarding Camps.....	911,884.70
Laundry Receipts.....	10,308.45
Receipts from Corrals.....	4,793.56
Miscellaneous.....	43,782.81
Interest on Loans.....	43,537.66
Total	1,016,899.65

Exhibit 8.—Subsidies and Dividends:

Annual Subsidy from Panama Railroad Company.....	75,000.00
Proceeds of Dividends on Panama Railroad Stock.....	344,945.00
Total.....	419,945.00

Exhibit 9.—Available Cash Balances:

In United States Treasury.....	1,777,903.83
In Zone Depositories.....	380,876.47
In Hands of Disbursing Officers—	
Disbursing Officer, Washington.....	212,215.18
Disbursing Officer, Empire.....	2,321,032.69
Special Disbursing Officer Karner.....	4,626.32
Special Disbursing Agent Parke.....	10,953.61
Ex-Disbursing Officer Schafer.....	550.31
Total.....	4,708,158.41

Exhibit 10.—Receipts Deposited in United States Treasury:

Proceeds of Sales.....	1,230,335.38
Proceeds of Rentals.....	190,062.46
Collections for work done.....	67,641.13
Earnings, Telegraph and Telephone Service.....	1,614.07
Interest on Loans.....	22,759.46
Annual Subsidy from Panama Railroad Company.....	75,000.00
Proceeds of Dividends on Panama Stock.....	344,945.00
Total.....	1,932,357.50

Exhibit 11:

Right of Way, Franchises and Panama Railroad Stock.....	\$50,000,000.00
Less amount charged to disbursement accounts for value of usable equipment and material received from New Panama Canal Company, taken into account June 30, 1907.....	648,511.65
Total.....	<u>49,351,488.35</u>

Exhibit 12.—Panama Railroad Stock:

Purchased from New Panama Canal Company 68,888 shares. Cost of above shares included in purchase price paid New Panama Canal Company. (See Exhibit 11.)	
Purchased from private shareholders 112 shares.....	156,320.00
Of the above shares 13 are held in the names of directors of the Panama Railroad Company, 1 share each, the Commission paying a part of the purchase price and incidental expenses, amounting to.....	798.24
	<u>157,118.24</u>

Exhibit 13.—Material and Supplies:

Amount Paid for Material and Supplies purchased to June 30, 1907.....	22,170,132.30
Manufacturing Account.....	930,905.02
Total.....	<u>23,001,037.32</u>
Less Amount charged out to June 30, 1907.....	19,266,740.16
Balance.....	<u>3,734,297.16</u>
General Purchasing Officer, Washington.....	134,430.03
Division of Material and Supplies, Isthmus.....	1,659,974.03
Assistant Purchasing Agents—	
New York.....	31,807.57
New Orleans.....	8,322.10
San Francisco.....	627.43
Tacoma.....	7,296.76
Services and Expenses of Inspectors.....	69,495.28
Freight Advances and Miscellaneous.....	942,733.99
Total.....	<u>2,854,687.19</u>
Less Amount added to Invoice Cost of Material and Supplies issued to June 30, 1907.....	2,290,817.57
Balance.....	<u>563,869.62</u>
Balance of Material purchased and manufactured, including Cost of Purchase, Handling, and Transportation to June 30, 1907.....	<u>4,298,166.78</u>

Exhibit 14.—Expenditures, General Administration:

Regular and Special Commissioners.....	388,685.61
Office of Administration.....	356,425.71
Division of Audit and Accounts.....	327,027.52
Division of Disbursements.....	312,752.31
Repairs and Depreciation of Buildings.....	18,668.53
Total.....	<u>1,403,557.68</u>

Exhibit 15.—Expenditures, Law and Government:

Administration.....	208,462.12
Administration of Justice.....	109,147.02
Division of Municipalities.....	366,030.71
Revenues, Education and Posts.....	
The Zone Treasurer.....	915.00

Exhibit 15.—Expenditures, Law and Government—Continued.

Police and Prisons.....	\$424, 485. 08
Fire Protection.....	68, 389. 47
Repairs and Renewals of Buildings.....	181, 304. 33
Military Protection.....	14, 981. 13
Maintenance and Operation of Waterworks and Sewers, Panama.....	33, 182. 96
Maintenance and Operation of Waterworks and Sewers, Colon.....	23, 683. 78
Total.....	<u>1, 430, 581. 60</u>

Exhibit 16.—Expenditures, Sanitation, Hospitals, and Asylums:

Sanitation.....	2, 160, 187. 28
Hospitals and Asylums.....	2, 200, 688. 15
Total.....	<u>4, 360, 875. 43</u>

Exhibit 17.—Expenditures:

Construction and Engineering.....	
Administration.....	442, 713. 93
Canal Construction—	
Engineering.....	718, 788. 15
Surveys.....	456, 651. 16
Excavation.....	5, 564, 463. 78
Transportation.....	3, 285, 861. 33
Tools and Implements.....	104, 008. 30
Track Grading, Laying, and Surfacing.....	928, 282. 13
Telegraph and Telephone.....	144, 521. 84
Structures.....	199, 672. 23
Docks and Wharves.....	391, 959. 14
Quarters, Repairs of.....	164, 125. 82
Gatun Dam.....	88, 441. 96
Gatun Dam Spillway.....	26, 855. 01
Gatun Locks.....	223, 493. 85
La Boca Dam.....	19, 854. 90
La Boca Spillway.....	3, 680. 35
Pedro Miguel Dam.....	1, 219. 26
Pedro Miguel Locks.....	8, 316. 36
Sosa-Corozal Dam.....	69, 569. 22
Sosa Locks.....	10, 359. 59
Waterworks and Sewers.....	130, 923. 45
Panama Railroad, Relocation of.....	100, 923. 45
Lands and Buildings Purchased.....	22, 544. 17
Clearance of Land.....	8, 038. 77
Total Canal Construction.....	<u>12, 672, 348. 72</u>
Public Works—	
Construction Waterworks and Sewers, Panama.....	760, 226. 41
Construction of Waterworks and Sewers, Colon.....	530, 612. 00
Street Improvements, Panama.....	457, 219. 11
Street Improvements, Colon.....	232, 690. 30
Improvement of Zone Highways.....	499, 023. 70
Total Public Works.....	<u>2, 479, 771. 52</u>
Total Exhibit 17.....	<u>15, 594, 834. 17</u>

Exhibit 18.—Expenditures, Plant:

Rolling Stock.....	4, 826, 832. 25
Excavating Machinery.....	1, 681, 155. 85
Floating Equipment.....	1, 602, 343. 90
Shop and Other Machinery and Tools.....	753, 838. 85
Rails, Fastenings, and Ties.....	891, 557. 04
Panama Railroad Company Second Main Track.....	411, 984. 63

Exhibit 18.—Expenditures, Plant—Continued.

Buildings -----	\$6, 922, 121. 82
Construction of Zone Waterworks and Sewers -----	1, 258, 653. 00
Electric-Light Plants -----	78, 930. 44
Lands Purchased -----	56, 882. 96
Total -----	18, 484, 300. 74

Exhibit 19:

Appropriation by Congress for Purchase of Canal Rights June 28, 1902 -----	40, 000, 000. 00
For Purchase of Canal Zone June 28, 1902, and April 28, 1904 -----	10, 000, 000. 00
For Construction of Canal— June 28, 1902 -----	10, 000, 000. 00
December 21, 1905 -----	11, 000, 000. 00
February 27, 1906 -----	5, 990, 786. 00
June 30, 1906 -----	25, 456, 415. 08
Total -----	102, 447, 201. 08

Exhibit 20.—Receipts, Miscellaneous Sources:

Revenues of Canal Zone (see Exhibits 1, 2, 3) -----	215, 094. 69
Receipts of United States Funds (see Exhibits 4, 5, 6, 7, and 8) -----	2, 875, 322. 93
Total -----	3, 090, 417. 62

Exhibit 21.—Sundry Accounts:

Collections -----	1, 480, 295. 84
Payments -----	1, 703, 514. 40
Balance -----	214, 218. 56

Respectfully submitted.

H. L. STUNTZ, *Fiscal Auditor.*

EMPIRE, CANAL ZONE, August 30, 1907.

ISTHMIAN CANAL COMMISSION,
Culebra, Canal Zone, November 15, 1907.

MY DEAR MR. TAWNEY: In compliance with the request made at the hearing before the Committee on Appropriations on the 11th instant, I take pleasure in inclosing herewith the following statement to June 30, 1907:

1. Miscellaneous receipts of United States Funds.
2. Receipts deposited in United States Treasury.
3. Revenues of the Canal Zone.

Statement No. 1 represents the total value of labor furnished and material sold to Panama Railroad and other like interests, whether collected or uncollected, on June 30, 1907.

Statement No. 2 represents amounts actually deposited with the United States Treasurer as Miscellaneous Receipts, including collections from employees prior to the passage of the Act of March 4, 1907, which authorizes such collections to be taken up as repayments to appropriations. It is estimated that collections made from the Panama Railroad Company, the Government of the Canal Zone, and others will aggregate \$750,000 per annum, and as this sum represents labor and material paid for out of the appropriations, they will be depleted by that amount unless the proposed bill authorizes such collections to be taken up as Repayments to the appropriations.

Respectfully,

GEO. W. GOETHALS, *Chairman.*

Hon. J. A. TAWNEY,

*Chairman of the Committee on Appropriations,
House of Representatives, Washington, D. C.*

ISTHMIAN CANAL COMMISSION—OFFICE OF DISBURSING OFFICER.

Statement No. 1.—Detailed statement of miscellaneous receipts of United States funds to June 30, 1907.

Sales of Property	\$712,171.05
Sales of French Material and Equipment	81,612.43
Sales of Water	255.43
Sales of Shares Panama Railroad Stock to Directors	1,300.00
Mess Accounts	50,587.73
Receipts from Pay Patients	78,375.77
Quarantine Subsistence	12,637.78
Rent of Lands and Buildings	47,036.32
Rent of Equipment	221,791.55
Panama Waterworks and Sewers, Rentals	19,238.20
Colon Waterworks and Sewers, Rentals	1,346.00
Rentals, Miscellaneous	35,449.29
Labor Furnished Railroad	155,212.55
Other Labor Furnished	21,464.13
Telegraph and Telephone Service	2,592.47
Hotels and Boarding Camps	911,884.70
Laundry Receipts	10,308.45
Receipts from Corrals	4,793.53
Miscellaneous*	43,782.81
Interest on Loans to Panama Railroad Company	43,537.63
Total	2,455,377.93

This statement includes material sold and labor performed for the Panama Railroad Company and various individuals, whether collected or uncollected on June 30, 1907.

Statement No. 2.—Detail of receipts deposited in United States Treasury, as of June 30, 1907.

Proceeds of Sales	\$1,230,335.38
Proceeds of Rentals	190,062.46
Collections for Work Done	67,641.13
Earnings, Telegraph and Telephone Service	1,614.07
Interest on Loans	22,759.46
Annual Subsidy from Panama Railroad Company	75,000.00
Proceeds of dividends on Panama Railroad Company Stock	344,945.00
Total	1,932,357.50

Statement No. 3.—Detailed statement of revenues of the Canal Zone government to June 30, 1907.

Sale of Stamps	\$58,513.83
Money-Order Fees	9,929.60
Distilling Licenses	17,723.23
Court Fees and Fines	6,155.87
Police Fines	1,170.72
Customs Fines and Penalties	450.00
Rent of Lands and Buildings	891.68
Municipal Funds	82,611.86
Administrative District Funds:	
Ancon	\$4,093.71
Empire	9,358.62
Gorgona	5,794.69
Cristobal	5,001.71
	24,248.73
Burial Permits	252.00
Miscellaneous	13,147.07
Total	215,094.69

* This amount comprises items classified as "Miscellaneous" by the office of the former general auditor in Washington, D. C., and is taken from entries made in his office, there being no detail available in this office.

M. C. GAY, *Disbursing Officer.*

**STATEMENT OF MR. H. L. STUNTZ, EXAMINER OF ACCOUNTS,
ISTHMIAN CANAL COMMISSION.**

The CHAIRMAN. You are the Examiner of Accounts?

Mr. STUNTZ. Yes, sir.

The CHAIRMAN. What is your name?

Mr. STUNTZ. H. L. Stuntz.

The CHAIRMAN. How long have you been serving in that position?

Mr. STUNTZ. Since the 15th of August.

The CHAIRMAN. You are serving under the Executive Order issued by the President at that time?

Mr. STUNTZ. Yes, sir.

The CHAIRMAN. As a result of the establishment of your division the auditing on the Canal Zone has been abandoned, has it not?

Mr. STUNTZ. Yes, sir; so far as the Commission funds are concerned, but not Canal Zone funds.

METHOD OF AUDITING.

The CHAIRMAN. Now, as to expenditures from appropriations made for the canal, you make your examinations before payment?

Mr. STUNTZ. No, sir; after payment.

The CHAIRMAN. Canal Zone funds?

Mr. STUNTZ. Yes, sir; after payment.

The CHAIRMAN. Then, is there an administrative audit in the Disbursing Office independant of your examination?

Mr. STUNTZ. No, sir; the Disbursing Office audits before payment.

The CHAIRMAN. I thought that under the Executive Order the Disbursing Officer or the Auditor made up the accounts; that is, collected the evidence and drew the voucher. and that it was then sent to you for the purpose of determining whether or not the voucher shall be issued.

Mr. STUNTZ. No, sir; he pays it and then submits it to me.

Colonel GOETHALS. An administrative examination is made, under the Treasury Department system, after payment and prior to the transmission of the account to the Auditor for the War Department. If I am correctly informed, the Commission tried an advance audit, but it was abandoned.

The CHAIRMAN. Inasmuch as we have an independent audit after payment by the Auditor for the War Department, and that audit is made de novo, what is the necessity for the audit down here?

Colonel GOETHALS. Nothing but the law. The law requires—the old Dockery Act—that an administrative audit be made. I tried to abolish it, but did not succeed.

The CHAIRMAN. How do you audit accounts for the Canal Zone Government?

Mr. STUNTZ. We receive them from the Treasurer of the Canal Zone, the same as the Isthmian Canal Commission accounts, and then we give them a very careful examination in every way.

The CHAIRMAN. Your force of employees consists principally of accountants?

Mr. STUNTZ. No, sir; my force consists principally of outside inspectors.

The CHAIRMAN. You have 13 or 14 accountants?

Mr. STUNTZ. Thirteen men in the office and from 40 to 45 men outside.

The CHAIRMAN. You have estimated for 57 time inspectors?

Mr. STUNTZ. Yes, sir.

DUTIES OF TIME INSPECTORS.

The CHAIRMAN. Will you explain to the Committee the duties of the time inspector?

Mr. STUNTZ. The time inspector is charged with examining the time records kept on the work, to ascertain that the time is being accurately kept. He examines the time books and sees that all the men called for in the book are on the job or satisfactorily accounted for. He makes a certificate of his inspection on the book. He instructs the foreman or timekeeper on the job, who may not thoroughly understand his business, and if necessary goes to the time office and notifies them of any irregularities he may discover, and in every way renders assistance to the timekeepers, superintendents, and supervisors to the end that the time books may be kept carefully and accurately; and any irregularities discovered are promptly reported to the office on a daily report made by him.

The CHAIRMAN. Have any of them discovered any fraud or deception practiced either by timekeepers or employees?

Mr. STUNTZ. Very frequently—little irregularities.

The CHAIRMAN. Will you give us an illustration?

Mr. STUNTZ. Last week, one day, one of our men in the Culebra District found a man who, because he could not secure an increase in pay for one of his men, allowed him an hour overtime each day in the time book.

The CHAIRMAN. By whom was that done—the timekeeper, or the foreman?

Mr. STUNTZ. By the timekeeper, under the direction of the foreman.

The CHAIRMAN. The timekeeper, under the direction of the foreman?

Mr. STUNTZ. Yes, sir. We find more cases of carelessness than we do of intentional irregularities.

The CHAIRMAN. How did you discover that the timekeeper, under the direction of the foreman, was allowing the man whom he wished to promote an hour overtime?

Mr. STUNTZ. I do not know; he did not tell me. I saw him last Saturday, and he mentioned to me that he had made report to the office about it, stating that he had made a discovery of the kind.

The CHAIRMAN. Do the men or the timekeepers know when your inspectors are to make examinations?

Mr. STUNTZ. No, sir.

The CHAIRMAN. How frequently do your inspectors visit for the purpose of making examinations?

Mr. STUNTZ. About once in every two and a half days; but some gangs are inspected daily. It depends upon the accuracy and intelligence of the timekeeper and upon the conditions surrounding the work. If a timekeeper is found to be careless or green at his busi-

ness, the time inspector will make as many inspections as are necessary—sometimes two a day; occasionally in a very bad case one man will inspect in the morning and another will come from another direction and make another inspection in the afternoon. They resort to all sorts of schemes in order to verify the books.

The CHAIRMAN. What kind of fraud or deception has been practiced by the employees, and what is the most common?

Mr. STUNTZ. The diverting of labor for their own personal use, I presume, is the most common.

The CHAIRMAN. In what respect?

Mr. STUNTZ. Well, one man on Juan Grande dumps used 9 or 10 men to fix up for a little party that he wanted to give at his house. Another man at the Empire shops deliberately used one of his men from the shops to carry wood up to his house, and upon being reported by the time inspector, after being caught the second time, was promptly discharged.

The CHAIRMAN. Was it a timekeeper who was doing that, or a foreman?

Mr. STUNTZ. A foreman was doing that.

The CHAIRMAN. Are cases of that kind frequent? I mean the diversion of employment on the Isthmus.

Mr. STUNTZ. Quite frequent. A great many cases are discovered where men use their water boys to do small things for them. Steamshovel men have their pitman do washing or carrying dinner up to the house, and things of that kind. There is a pile driver working on the Sosa-Corozal dam, and the gang employed there has a man rated as a carpenter at 32 cents an hour. The time inspector reports that he is not a carpenter, but is a cook and is cooking for that gang. So far as we have been able to ascertain the gang is not entitled to a cook. Investigation proves that he is cooking yet. He is still carried on the rolls as a carpenter.

The CHAIRMAN. What do you do in cases of that kind?

Mr. STUNTZ. Try to adjust the matter with the head of the department, if we can, and if not, then we report it to the Chairman.

The CHAIRMAN. Do you make any recommendations as to what should be done?

Mr. STUNTZ. No, sir; not ordinarily, unless I am asked to do so.

The CHAIRMAN. You just report the facts?

Mr. STUNTZ. Yes, sir.

Mr. GARDNER. Do you ever find cases of collusion between inspectors and foremen on the work?

Mr. STUNTZ. I can not say that we do. We have a traveling man who goes up and down the line, jumping off here and there, who keeps a very accurate check on things of that kind. We do not tolerate any improper conduct on the part of time inspectors. If a man gets drunk we discharge him immediately.

The CHAIRMAN. Do time inspectors also count the cash in the disbursing office?

Mr. STUNTZ. No, sir.

The CHAIRMAN. Do you do it?

Mr. STUNTZ. I never have.

Colonel GOETHALS. I had a count made by officers of the Treasury Department in July. The count was made at my request. I especially requested that they be sent down to check up the cash.

The CHAIRMAN. I think that is all.

Following is the Executive Order referred to:

EXECUTIVE ORDER.

Under authority vested in me by law it is ordered:

1. That on and after August 15, 1907, the positions of General Auditor and Local Auditor be abolished.

2. That there be appointed for the Commission upon the Isthmus an Examiner of Accounts, and in Washington, D. C., an Assistant Examiner of Accounts.

3. The duties of the Examiner of Accounts on the Isthmus shall be:

(a) To inspect and examine all vouchers prepared and paid by the Disbursing Officer on the Isthmus.

(b) To inspect from time to time the accounts of all officials of the Commission on the Isthmus charged with the care of funds or property of the Commission, and to annually verify property accounts by an inventory of all property.

(c) To semiannually, or oftener if public interests seem to require, count the cash in the hands of disbursing officers and other officials on the Isthmus intrusted with the custody of funds of the Commission or of the Canal Zone Government.

(d) To check up from time to time, as the interests of the Commission seem to require, through inspectors to be appointed by him, the returns of laborers and employees working by the day or upon an hourly basis in any of the several departments or divisions of the Commission. Inspectors now charged with similar duties under the disbursing officer shall be transferred to the jurisdiction of the Examiner of Accounts.

(e) To check from the appointment records the pay rolls of employees engaged upon a monthly or yearly basis.

(f) To examine periodically the general books of the Commission kept by the Disbursing Officer.

(g) To keep a record of claims payable to and of accounts and bills receivable by the Commission, and to check against the same collections made by the Disbursing Officers. It shall also be his duty to direct the attention of the Disbursing Officer from time to time to unsettled claims, accounts, or bills receivable by the Commission, and to urge their collection. Statements of all claims due the Commission or bills and accounts receivable shall be promptly transmitted by the department whence they originate to the Examiner of Accounts, in order that he may have an independent record of the claims, accounts, and bills receivable with the collection of which the Disbursing Officer is charged. The original evidence or documents supporting such claims, accounts, or bills receivable shall be transmitted to the Disbursing Officer for collection.

(h) All vouchers for accounts payable or receivable shall be examined and checked by him as soon after payment as practicable. He shall also, at a later period and as promptly as possible after transmission to him of the Disbursing Officer's account current, certify thereon his administrative examination of and transmit the same, together with accompanying vouchers, to the Auditor for the War Department, for final audit. He shall not, however, keep duplicate sets of vouchers or of the documentary or other evidence from which the vouchers are prepared, but may keep a voucher register.

(i) If he dissents from any voucher paid by the Disbursing Officer, he shall note his exceptions and submit the same to the Disbursing Officer for correction, before the latter's account current is made up. If an agreement shall not be arrived at between the Examiner of Accounts and the Disbursing Officer, a statement of the unadjusted differences shall be transmitted by the Examiner to the Auditor for the War Department with the Disbursing Officer's account current.

(j) He shall also audit the accounts of the Canal Zone Government.

(k) He shall be appointed by and report to the Chairman of the Isthmian Canal Commission, and it shall be his duty to call the attention of the Chairman to any irregularities in the accounts or books of any officer or employee of the Commission.

4. The duties of the Disbursing Officer on the Isthmus, in addition to the payment and disbursements of the funds of the Commission upon properly prepared vouchers, shall be:

(a) To assemble the original documents, papers, and other evidence from which the vouchers are prepared.

(b) To collect all claims due the Commission or accounts and bills receivable.

(c) To keep property accounts with the various officers upon the Isthmus charged with the custody or use of property.

(d) To keep the general books of the Commission, which shall properly classify all the expenditures made by the Commission, and apportion expenditures and the cost of labor and supplies among the several departments in the proportion in which they are used by the several departments.

(e) To furnish at all times access to his books, original papers, and documents, to the Examiner of Accounts and his representatives.

(f) To distribute expenditures made by the Commission under the proper appropriation heads.

(g) His books shall show the amount expended by each of the several departments during each calendar month, and from the beginning of the work, and exhibit comparative statements of expenditures for the same calendar month of the previous year.

(h) His books shall likewise contain an exhibit of the work done by each department of the Commission, and by the Commission as a whole, and shall show the comparative cost of doing similar work between corresponding annual dates and between the several departments.

(i) In the total cost of the work, as performed by the several departments, and by the Commission as a whole, account shall be taken of the general expenditures of the Commission, whether on the Isthmus or in the United States.

(j) He shall transmit weekly abstracts of the general books to the Disbursing Officer at Washington, in order that duplicates of the same may be kept in the United States.

(k) Requisitions for public funds shall be submitted to the Examiner of accounts for notation.

5. The Assistant Examiner of Accounts, so far as the requirements of the work in the United States demand or permit, shall perform for the Commission in the United States similar duties to those performed by the Examiner of Accounts on the Isthmus, and shall likewise inspect the accounts of Special Disbursing Officers not employed on the Isthmus, which shall be forwarded to him at Washington for that purpose before transmission to the Auditor for the War Department. Abstracts of approved expenditures by the Special Disbursing Officers shall be periodically transmitted by him to the Disbursing Officer upon the Isthmus for entry in the general books.

6. The Disbursing Officer in the United States, so far as the requirements of the work in the United States demand or permit, shall perform duties corresponding to those of the Disbursing Officer on the Isthmus, except that the general books kept by him shall only be duplicates of the general books kept by the Disbursing Officer on the Isthmus. He shall weekly transmit to the Disbursing Officer on the Isthmus abstracts of all payments, disbursements, and collections made by him and statements of approved vouchers outstanding.

7. The original documents from which the vouchers are prepared shall be transmitted to the Auditor of the Treasury for the War Department by the several Disbursing Officers, with their accounts current, through the Examining Officers. Duplicates of such documents, however, shall be retained in the office of the several Disbursing Officers as part of the records of the Commission.

THEODORE ROOSEVELT.

THE WHITE HOUSE, August 15, 1907.

STATEMENT OF MR. JACKSON SMITH, COMMISSIONER AND MANAGER OF DEPARTMENT OF LABOR, QUARTERS, AND SUBSISTENCE.

The CHAIRMAN. Mr. Smith, you are one of the Commissioners of the Isthmian Canal Commission?

Mr. SMITH. Yes, sir.

SCOPE AND FUNCTIONS OF THE DEPARTMENT.

The CHAIRMAN. Will you explain to the Committee the part of the work you have immediate charge of under the Chairman and Chief Engineer?

Mr. SMITH. I am head of the Department of Labor, Quarters, and Subsistence. I am charged with securing all skilled and unskilled labor, and their distribution and assignment to work. My department is the custodian of all living quarters, allotting same to employees according to their standing, as gauged by salary earned, and in conformity with rules and regulations approved by the Commission. It supplies furniture to quarters, delivers distilled water to offices, residences and shops, and is in direct charge of the delivery of all food supplies, including ice, bread, and cold-storage articles, from railroad stations or local commissaries to residences, hotels, messes, and kitchens. It polices the grounds around camps and quarters, cleaning up waste and refuse material, and placing same within reach of those charged with disposition of same. It also has charge of the lighting of the camps and roads to and through them. It operates the hotels, messes, and kitchens for the accommodation of the employees of the different grades—the hotels for white Americans, the messes for Europeans, and the kitchens for the natives of the West Indies. It keeps the service history of each individual employee in the general personnel record, of which it is the custodian; issues, by order of the Chairman, and enters therein all orders pertaining to leaves of absence, sick leave, resignations, discharges, promotions, and reductions. It also authorizes the issuance of steamship transportation and special rates to which employees are entitled.

SUPPLY OF SKILLED LABOR.

The CHAIRMAN. Have you experienced much difficulty in securing skilled labor during the last six months?

Mr. SMITH. During the last six months, very little; we have had very little difficulty.

The CHAIRMAN. Do applications for positions come to you?

Mr. SMITH. They are handled more particularly through our employment agents in the States.

The CHAIRMAN. In the States?

Mr. SMITH. Yes, sir.

The CHAIRMAN. Skilled labor is not in the classified service?

Mr. SMITH. No, sir. All outside positions, clerks, stenographers, bookkeepers, doctors, nurses, and draftsmen are in the civil service. All others are "outside positions" and we get their applications either through the Washington office of the Commission or through our employment agents; look up their records and see if they are fit for this work.

The CHAIRMAN. Now, when there is necessity for employing skilled labor in any department, the head of the department makes that fact known to you and you then proceed to secure the necessary appointees?

Mr. SMITH. No, sir; Our custom is to find out what is wanted at the end of each six months by each department, and make our requisitions accordingly through the Washington office, and secure them through our men.

The CHAIRMAN. Our men? I suppose you mean employment agents?

Mr. SMITH. Yes, sir; who report to me.

The CHAIRMAN. They are in the employ of the Isthmian Canal Commission in the States?

Mr. SMITH. Yes, sir.

The CHAIRMAN. How many of these agents have you in the States?

Mr. SMITH. Three, until recently. We have just transferred one man to the Isthmus, and he is employed in the Department of Construction and Engineering.

The CHAIRMAN. How many agents have you in European countries?

Mr. SMITH. One.

The CHAIRMAN. Who is that?

Mr. SMITH. Le Roy Park.

The CHAIRMAN. How many in the West Indies?

Mr. SMITH. One in Barbados and one in Martinique.

The CHAIRMAN. And you say that during the last six months you have had very little difficulty in securing all the skilled labor in the States that you were required to furnish?

Mr. SMITH. Yes, sir; very little difficulty. We have been finding very good men, and experience very little difficulty in inducing them to come down here.

SUPPLY OF UNSKILLED LABOR.

The CHAIRMAN. How is it with the common labor?

Mr. SMITH. For the past six months we have been pretty easy on that. Our importations have been probably four or five hundred a month to keep up the forces.

The CHAIRMAN. Are the men employed as common laborers inclined to return to their homes shortly after coming here, or do they stay?

Mr. SMITH. Just now they are staying pretty well.

The CHAIRMAN. What is the average length of time the common laborers remain here?

Mr. SMITH. Pretty near to a year, I should say.

The CHAIRMAN. A year?

Mr. SMITH. Yes, sir; that is, the men who come down now don't generally begin to go up until November or December, whether they come in January or any time during the summer. November and December are our largest emigration months.

The CHAIRMAN. Do you find many men who have been here for any length of time and who have returned to their homes, coming back to the Isthmus for reemployment?

Mr. SMITH. A great many.

The CHAIRMAN. Is that also true of skilled labor?

Mr. SMITH. Yes, sir; to quite an extent now. We find a great many who go away who want to, and do, come back.

The CHAIRMAN. Do you know how the pay received by the common laborer from the West Indies, here, compares with the pay he gets for similar work where he comes from?

Mr. SMITH. We pay here very nearly three times as much as he gets in his native country.

The CHAIRMAN. When they return to their homes after being employed here for any length of time and then come back for second employment, do we again pay their expenses back here?

Mr. SMITH. We make it possible for them to get the same rates on the steamers as for contract laborers. In cases where he can be identified as a former employee, we make him pay his own way.

The CHAIRMAN. Now you state that the laborers from the West Indies receive about three times the compensation for their labor that they received in their native country. Is that also true of those who come here from the north of Spain or from Italy?

Mr. SMITH. Yes, sir. The wages in the north of Spain and in Italy are not more than about a fourth or a third what we pay them here.

The CHAIRMAN. As to the efficiency of the common laborer whom you get from the north of Spain, how does it compare with that from the West Indies?

Mr. SMITH. From reports and expressions I have since they have been coming here I should say about two or two and a half to one.

The CHAIRMAN. Are you making any special efforts to secure more of that class of labor, thereby dispensing with that class of West Indian labor?

Mr. SMITH. I am only supplying the demand that comes to me from month to month. There is very little demand for increase in European forces. The work that the European is especially adapted for is pretty well covered.

The CHAIRMAN. The average pay of the European laborer is 20 cents gold per hour?

Mr. SMITH. Yes, sir.

The CHAIRMAN. That is the average?

Mr. SMITH. Yes, sir. That is the average pay for the European laborer. We rate a few at 16 cents per hour.

The CHAIRMAN. Can you get more of the European laborers if required?

Mr. SMITH. Yes, sir.

Mr. GRAFF. What labor is it that he is especially adapted for?

Mr. SMITH. He is used principally on tracks and dumps—the heavier excavation work, the work which requires more intelligence.

The CHAIRMAN. He is stronger, besides?

Mr. SMITH. Yes, sir. He is stronger and he has a head. He can do work the same way to-day that he did yesterday.

Mr. KEIFER. What do you pay Jamaicans?

Mr. SMITH. Ten cents an hour.

Mr. KEIFER. Just half.

The CHAIRMAN. Are your expenditures for recruiting skilled and unskilled labor increasing?

Mr. SMITH. No, sir; they are decreasing rapidly. We spent \$700,000 for this purpose last year. It will not exceed \$400,000 this year, and next year I will keep it within \$250,000.

ALLOTMENT OF QUARTERS.

The CHAIRMAN. Your department is also the custodian of all living quarters?

Mr. SMITH. Yes, sir.

The CHAIRMAN. You allot them?

Mr. SMITH. Yes, sir.

The CHAIRMAN. State to the Committee just how you allot them.

Mr. SMITH. I can do that better by reading the law; an extract from the eighteenth meeting of the Commission, dated August 18, 1905, containing rules governing the allotment of quarters which pertains to-day, with the exception of minor changes. (Reads:)

ISTHMIAN CANAL COMMISSION,
Panama, August 25, 1905.

Circular No. 2.]

ASSIGNMENT OF QUARTERS.

Beginning with September 1, 1905, quarters will be assigned upon a compensation basis, as follows:

For each dollar of monthly salary, 1 square foot of floor space.

Rooms containing less than 64 square feet, or space used as hallways, bath, water-closets, or kitchens, will not be included.

Men whose rating is on an hourly basis to be considered as working 208 hours per month.

Dependent members of the families of employees to be assigned space on a basis of percentage of that to which the head of the family is entitled.

	Per cent.
Wife -----	100
Children (for each year of age) -----	5
Other relative adults -----	75
Other adults (includes white servants) -----	50

For native or colored servants no allowance will be made. They must be quartered in such excluded space as is available.

The above does not apply to officers whose remuneration is \$400 per month or over.

FURNITURE.

All furniture, property of the Commission, now in quarters to be inventoried and taken in account by the Branch of Labor and Quarters.

No furniture will be issued direct to employees, but will be issued solely to the Branch of Labor and Quarters, and the manager will assign furnished quarters to all employees entitled to same. No furniture must be removed from any room, apartment, or house except by a duly authorized representative of the Branch of Labor and Quarters.

Upon being assigned quarters, each employee must receipt for the articles of furniture in same, and will be held responsible for the safe keeping of such articles.

APPLICATION FOR QUARTERS.

Application for quarters must be made, in writing, by the departmental officer in charge of the making of the time roll of the employee for whom quarters are desired, or by his immediate assistant or Chief Clerk, and will in all cases state the exact title or occupation of the employee, his rate of remuneration, and his place of birth, and rate.

Applications for married quarters must state number of adults and their relation to employee, and number and ages of children.

SURRENDER OF QUARTERS.

Pay vouchers will not be issued by departmental officers to employees discharged or given leave of absence, nor will they be transferred to service on another Division, or in another Department, until employee presents a clearance from the Branch of Labor and Quarters covering all quarters which may have been assigned to him, including their contents.

JACKSON SMITH,
Manager, Branch of Labor and Quarters.

Approved.

CHARLES E. MAGOON,
Head of Department of Government and Sanitation.
JOHN F. STEVENS,
Chief Engineer, Department of Engineering and Construction.

The CHAIRMAN. Do your agents in the States have copies of this order or this rule?

Mr. SMITH. Yes, sir.

The CHAIRMAN. And do skilled employees come down here upon the representation that they will get quarters as soon as they can be provided?

Mr. SMITH. On the back of their employment contract is the rule which governs, and which states practically what is contained in the above-mentioned order.

The CHAIRMAN. No time is fixed as to when they will get them?

Mr. SMITH. No, sir. A later rule says that generally they can get quarters in about ten months after their application.

The CHAIRMAN. Are there any other inducements made to these men who are prospective employees at the time or before they come here?

Mr. SMITH. Nothing more than the rate of pay; the conditions under which they can get quarters and the fact that there are certain privileges extended to them after they are on the Isthmus and in the service, in the nature of light, fuel, leaves of absence, sick leave, and medical attention.

FURNITURE.

The CHAIRMAN. What does the furnishing of a one-family cottage cost?

Mr. SMITH. Approximately \$140.

The CHAIRMAN. One hundred and forty dollars?

Mr. SMITH. Yes, sir.

The CHAIRMAN. What does the furniture consist of?

Mr. SMITH (reading). One range, 1 double bed, 2 pillows, 2 kitchen chairs, 6 dining chairs, 1 chiffonier, 2 center tables, 1 mosquito bar, 1 refrigerator, 1 double mattress, 1 kitchen table, 1 dining table, 1 sideboard, 1 dresser, 1 bedroom mat, 3 wicker rockers.

The CHAIRMAN. What is the cost of furnishing a four-family cottage?

Mr. SMITH. Each family would get this same allotment; that is, each of the four families which are contained in one house would get the amount of furniture enumerated above, the same as if each family occupied a single house.

Mr. BURLESON. And any additional furniture they might require, they would be permitted to buy?

The CHAIRMAN. That is, they are permitted to buy additional furniture at the Commissary, at cost?

Mr. SMITH. Yes, sir; cost, including surcharge.

The CHAIRMAN. How much is added to the original cost as a surcharge?

Mr. SMITH. About 25 per cent.

The CHAIRMAN. Furniture is bought by the Government in large quantities?

Mr. SMITH. Yes, sir; on requisition. We try to requisition so as to have a sufficient supply to last for from sixty to ninety days always on hand.

The CHAIRMAN. Do you know whether the Government gets this furniture below what it is sold to the trade in the States?

Mr. SMITH. I do not know that we get it any lower, but the cost is quite reasonable and never excessive.

FUEL, LIGHTS, AND WATER.

The CHAIRMAN. Do you know, or have you any record of the amount of coal consumed in a one-family cottage per month, or per year, or in a four-family cottage?

Mr. SMITH. We know about the value of the coal which is used in the different classes of houses; we have made an estimate on that. It ranges from \$2 to \$4 per month.

The CHAIRMAN. That is the actual cost price to the Government?

Mr. SMITH. We estimate that the coal furnished the smaller families costs us about \$2, and to the larger ones about \$4 per month. It all depends upon the size of the families.

The CHAIRMAN. What do you estimate the light costs the Government?

Mr. SMITH. In the small houses the light costs us \$4.50 per month, and in the other houses from \$7.70 to \$12 per month, depending, of course, on the number of lights. I make this estimate on the basis of what the Mechanical Department charges us for light.

The CHAIRMAN. Does the Mechanical Department charge the actual cost of furnishing the light, and any surcharge?

Mr. SMITH. They make their cost estimate, which includes everything; they charge us about 75 cents a light.

The CHAIRMAN. That is the rate—75 cents per light?

Mr. SMITH. Yes, sir; 75 cents per light per month.

Mr. GARDNER. Is there any disposition on the part of the occupants of these flats to economize on lights?

Mr. SMITH. I am afraid there is very little.

The CHAIRMAN. Do I understand that these are 16-candlepower lights?

Mr. SMITH. Yes, sir.

The CHAIRMAN. What do you estimate the water costs the Government?

Mr. SMITH. Well, no estimate has ever been made covering the cost of water. I have never gotten a bill.

The CHAIRMAN. Now, to the residences and shops you deliver distilled water, don't you?

Mr. SMITH. Yes, sir; at all places where we have a distilling plant; and the Isthmus is pretty well covered now.

The CHAIRMAN. Is there any record which would enable you to ascertain the cost of furnishing distilled water to the houses?

Mr. SMITH. No, sir; I started just within the last few days to keep a record of the cost on that.

ICE.

The CHAIRMAN. The ice is furnished to these quarters by the Commission also, is it not?

Mr. SMITH. We furnish the service; and, in proportion to the work performed by the gangs, on ice, bread, and all commissary supplies we charge back against the Commissary for that.

The CHAIRMAN. You charge that back against the Commissary?

Mr. SMITH. We charge back against the Panama Railroad. Our bill amounts to about \$2,000 per month.

The CHAIRMAN. The Railroad Company furnishes the ice?

Mr. SMITH. Yes, sir.

The CHAIRMAN. At what rate do they supply the ice?

Mr. SMITH. At about half a cent a pound; 40 cents per hundred.

The CHAIRMAN. That is what it costs the consumer, delivered at his residence?

Mr. SMITH. Yes, sir; delivered at his residence. We perform the delivery service and charge it back to the Commissary. It is free to the employees, but we are reimbursed through an account charge.

The CHAIRMAN. I suppose the Railroad Company aims to secure for its ice a price that will pay also for the delivery charge made against it by the Commission?

Mr. SMITH. Yes, sir.

BREAD.

The CHAIRMAN. At what price is bread furnished to the families occupying these quarters?

Mr. SMITH. At 4 cents a loaf.

The CHAIRMAN. Does that include delivery?

Mr. SMITH. Yes, sir.

Mr. GARDNER. It is a pound loaf, is it not?

Mr. SMITH. Yes, sir.

LAUNDRY.

The CHAIRMAN. What system have you in regard to laundry, and what is the cost to employees?

Mr. SMITH. That is a Commissary matter; I simply deliver the laundry.

The CHAIRMAN. You deliver it free?

Mr. SMITH. It comes within the charge which we make against the Panama Railroad for the delivery service.

The CHAIRMAN. How do the rates for laundry to the employees compare with the ordinary laundry rates in the States?

Mr. SMITH. They are about equal to the rates charged for laundry work outside of the large hotels; in other words, the same as commercial rates—probably a little less. I think the laundry prices are very fair.

RATES AT HOTELS, MESSES, AND KITCHENS.

The CHAIRMAN. Do you also operate the hotels, messes, and kitchens?

Mr. SMITH. Yes, sir.

The CHAIRMAN. What rates do you charge the employees at your hotels and kitchens?

Mr. SMITH. At the hotels along the line meals are furnished at 30 cents apiece—

The CHAIRMAN. If the employee has a coupon book?

Mr. SMITH. Yes, sir.

The CHAIRMAN. If the employee has no coupon book, he pays 50 cents?

Mr. SMITH. Yes, sir.

The CHAIRMAN. Do you know whether the cafés are being operated at a profit or not?

Mr. SMITH. We just break about even. One month we may operate at a slight loss; the next month we get it back. In the long run, however, I should say we just about break even. That is our purpose.

Mr. BURLESON. The purpose being to permit the canal employees to secure food at actual cost, as nearly as possible?

Mr. SMITH. Yes, sir; we are running them for the employees as a large contributing mess.

Mr. SMITH. Yes, sir; we are running them for the employees as a profit?

Mr. SMITH. We just about break even there also; the rainy months here—the Summer months abroad—we lose; but after our rains are over, beginning about this time in the year, when people are crossing the Isthmus, the commercial travel between boats enables us to make back what we have lost during the rainy season.

The CHAIRMAN. What rates do you charge employees at the Tivoli Hotel?

Mr. SMITH. Fifty cents for breakfast, 50 cents for lunch, and \$1 for dinner. The room charges range from about \$1 to \$2.50 per day, where they are transients. If an employee lives there regularly, he gets his room from \$7.50 to \$25 per month.

The CHAIRMAN. Do you charge employees \$2 a day for meals? That is, those employees who are permanent?

Mr. SMITH. No, sir; \$35 per month.

The CHAIRMAN. What are the rates for nonemployees?

Mr. SMITH. Transients, \$1.50 to \$6 per day for rooms. Meals, 50 cents for breakfast, \$1 for luncheon, and \$1.25 for dinner.

The CHAIRMAN. How many rooms are there in the Tivoli Hotel, Mr. Smith?

Mr. SMITH. One hundred and thirty-two, Mr. Chairman.

The CHAIRMAN. Is the hotel occupied, or full, pretty much all the time in the dry season?

Mr. SMITH. It averages pretty well.

Mr. BRICK. It about pays the salary of the man who runs the hotel?

Mr. SMITH. Yes, sir.

The CHAIRMAN. Do you provide subsistence for all the common laborers?

Mr. SMITH. Only for part of them.

The CHAIRMAN. What part of them?

Mr. SMITH. The negro who gets the lower wage; that is, the 10-cents-gold-per-hour fellow, that is unattached. We give him 13½ cents silver per hour and his subsistence.

The CHAIRMAN. What does that amount to?

Mr. SMITH. About 30 cents per day.

The CHAIRMAN. Subsistence?

Mr. SMITH. Yes, sir.

The CHAIRMAN. Well, how much for the white people, or white laborers?

Mr. SMITH. The Europeans—we feed them for 40 cents per day; but we allow them the option of boarding or not, as they choose. Of the Europeans, over 80 per cent live at the messes we run for them.

The CHAIRMAN. You charge them 40 cents per day, gold?

Mr. SMITH. Yes, sir.

Mr. BRICK. They work on the Silver Roll and eat on the Gold Roll? [Laughter.]

Mr. SMITH. Yes, sir.

CONSTRUCTION OF QUARTERS.

The CHAIRMAN. How many houses at the close of the last fiscal year were available for quartering employees of all classes?

Mr. SMITH. The number of houses actually used, 1,500; number of houses on the Isthmus, 2,500. That includes everything. The 1,500 houses were actually used as living quarters.

Mr. GRAFF. You mean this number of houses was used by families?

Mr. SMITH. Yes, sir; houses, including flats and all; 1,500 houses being occupied as quarters for families, bachelors, etc.; some are of the four-family and some of the two-family type.

Mr. GRAFF. Do you know the number of quarters for families?

Mr. SMITH. Yes, sir.

The CHAIRMAN. You have a statement showing the number of houses, the number of hotels, number of quarters, etc.? If so, I will put that in the testimony in connection with your statement.

Mr. GRAFF. Mr. Smith, will you kindly tell me the number of white families which are quartered by the Commission on the Isthmus?

Mr. SMITH. Houses occupied by married people, 546; quarters in same, 907; men in these family quarters, 959; women in these family quarters, 996; children in these family quarters, 770.

The CHAIRMAN. How about quarters for the unmarried employees?

Mr. SMITH. Bachelor quarters, 217; rooms in same, 2,084; occupants, 3,762.

Mr. BURLESON. Mr. Smith, how many houses have you promised in contracts made with employees which are not yet supplied?

Mr. SMITH. We have applications for approximately 500 family quarters on file as of November 1.

Mr. BURLESON. Very nearly as many as you have now?

Mr. SMITH. Yes, sir.

The CHAIRMAN. You say these are applications from employees who are now here?

Mr. SMITH. Yes, sir; from employees now on the Isthmus.

Colonel GOETHALS. You will recall, Mr. Chairman, that this afternoon I informed you that our records showed a trifle over 300 applications for family quarters on file. That was for September 1. Judging from the figures Mr. Smith has just presented, the number of applications is increasing at the rate of 100 per month.

The CHAIRMAN. Do I understand that these 500 applicants have families in the States?

Mr. SMITH. Yes, sir.

The CHAIRMAN. How many are these whose families are living in Panama and Colon?

Mr. SMITH. I should say very few.

Mr. GARDNER. Do you know what per cent of these men applying for family quarters are now married?

Mr. SMITH. I should say at least 90 per cent of them. A few make application on their prospects. [Laughter.]

The CHAIRMAN. How does the number of unmarried men compare with the number of married men from the States?

Mr. SMITH. We have in quarters 3,762 unmarried men and 959 who have their families here.

The CHAIRMAN. How many of these men now occupy quarters with their families?

Mr. SMITH. Nine hundred and fifty-nine are married and occupy quarters here with their families.

The CHAIRMAN. I understood you to say that there are 500 married men whose families are at home?

Mr. SMITH. Yes, sir.

Mr. GRAFF. To furnish quarters for them would cost over \$1,000,000?

Mr. SMITH. Yes, sir; about that.

Mr. GRAFF. Five hundred families at \$2,000 a family—that would be just \$1,000,000.

The CHAIRMAN. A part of the 3,700 occupying bachelor quarters are now married, are they not?

Mr. SMITH. Yes, sir. Five hundred of that 3,700 have applications in for married quarters.

The CHAIRMAN. You class them as unmarried because they live in bachelor quarters?

Mr. SMITH. Yes, sir.

Mr. MADDEN. Three thousand seven hundred and 900 are accounted for; that is 4,600. How many American employees are there on the Isthmus?

Mr. SMITH. We have on the Isthmian Canal Commission rolls about 4,900.

The CHAIRMAN. From the States?

Mr. SMITH. Yes, sir. The Panama Railroad has a little more than 1,100, making over 6,000 in all.

Mr. MADDEN. What do you do with the men you have not accounted for—30,000?

Mr. SMITH. They are silver men. Negro laborers, married, occupy 262 houses; number of quarters or flats occupied, 1,051; number of men in these flats, 1,175; number of women in these flats, 1,067; number of children, 754. For bachelor negroes, number of houses, 243; number of rooms occupied, 422; number of occupants, 9,445. A room is often a barrack, and will frequently take care of from 40 to 60 men.

Mr. MADDEN. How many does that make, all told?

Mr. SMITH. That makes 10,620; and that leaves about 6,000 negroes unaccounted for.

Mr. MADDEN. Where do they go?

Mr. SMITH. They live in the little cottages which they build for themselves around on the hills.

Mr. GRAFF. Do they prefer to do that?

Mr. SMITH. They do; yes, sir.

Mr. GARDNER. Do you encourage that?

Mr. SMITH. Yes, sir; as much as possible.

Mr. GARDNER. Do you furnish quarters for Panama Railroad employees?

Mr. SMITH. Our quarters are, in a measure, interchangeable. Where the Panama Railroad man's duties require him to live in the Zone, we take care of him, because his work is so much the same as ours that it is desirable that we do this.

The CHAIRMAN. Does the Panama Railroad Company provide quarters for its own employees?

Mr. SMITH. In Colon only; some in Panama.

Colonel GOETHALS. They have some in Cristobal, and one at Gatun; all of which are handled by Mr. Smith as Commission houses.

The CHAIRMAN. How about the Spaniards?

Mr. SMITH. Married: Number of houses, 26; quarters, 144; men, 104; women, 104; children, 120. Bachelors: Number of houses, 147; quarters (rooms), 168; occupants, 4,625.

Mr. GILLET. One hundred and sixty-eight rooms? Four thousand six hundred and twenty-five occupants?

Mr. SMITH. Well, you see, of course, a room is a barrack, accommodating from 20 to 70.

Mr. BRICK. What is the total number of Spaniards?

Mr. SMITH. Four thousand seven hundred and twenty-nine; though on the force report there is close on to 5,000; there is a percentage of them who live in the small towns.

JANITOR SERVICE AND SANITARY INSPECTION.

The CHAIRMAN. Now, in hotels and quarters, what system have you for keeping them in a sanitary condition?

Mr. SMITH. We have janitors to look after them, three classes: Janitors for the white quarters, janitors for the negro quarters, and janitors for the European quarters. Each man is assigned from one to two or three barrack buildings, according to their size, and their business is to keep them clean.

The CHAIRMAN. Have you an inspection force that goes around and sees that the duties of the janitor force are performed properly?

Mr. SMITH. Yes, sir. We have a well-organized force, and we require them to be in first-rate order, beginning with the hotels and kitchens from 2 to 4 o'clock in the afternoon.

The CHAIRMAN. Is there a District Physician who visits these places?

Mr. SMITH. Yes, sir. The District Physician makes a weekly report on all of these places.

The CHAIRMAN. Are the vegetables, meat, and other kinds of food inspected?

Mr. SMITH. They are inspected by the District Physician and by our own men. If there is anything that is not exactly right our own men call for the District Physician and he passes upon them as to whether or not the goods are in good condition.

The CHAIRMAN. Where is this inspection made? At the place where the food is delivered, Mr. Smith?

Mr. SMITH. Yes, sir. At the kitchen, mess hall, or hotel, as the case may be.

The CHAIRMAN. How many cold-storage plants have you on the Zone.

Mr. SMITH. Only one; that is at Cristobal.

The CHAIRMAN. At Cristobal? And meat is supplied to the various places along the line of the Canal by the railroad company?

Mr. SMITH. Yes, sir. They have a supply train which comes out every morning.

The CHAIRMAN. They have refrigerator cars?

Mr. SMITH. Yes, sir.

The CHAIRMAN. And the goods are brought in a refrigerator car from Cristobal to the point where delivered?

Mr. SMITH. Yes, sir. And my utility gangs meet that train and take all goods directly to the house to which the goods are consigned.

Mr. GARDNER. In estimating the cost of meals at 30 cents, what does that embrace?

Mr. SMITH. That embraces the cost of supplies, the cost of labor, of fuel, and deterioration.

Mr. GARDNER. Not the cooking and the laundry?

Mr. SMITH. Yes, sir; everything is included. We find that the 30-cent meal, which includes waiters, cooking, laundry, fuel, and everything incidental to the preparation of that meal, costs us between 8 and 9 cents. The material takes up the balance, 21 to 22 cents.

The CHAIRMAN. Do the meals average up to the meals we have had here within the last day or two?

Mr. SMITH. Yes, sir. [Laughter.]

The CHAIRMAN. Now, Mr. Smith, you have an estimate here for repairs to quarters; page 15 of the bill. First, general official building, \$15,000. Is that your estimate?

Mr. SMITH. No, sir.

REPAIRS TO QUARTERS.

The CHAIRMAN. Then you have \$235,000 as estimate for repairs to quarters. Is that your estimate?

Mr. SMITH. No, sir.

Colonel GOETHALS. But Mr. Smith can tell you how the requests for repairs are made up and reported on.

Mr. SMITH. The repairs are, of course, heavier on the converted or reclaimed French buildings; but these repairs cover only the painting and preservation of the buildings.

The CHAIRMAN. The preservation of the buildings erected during the last two years?

Mr. SMITH. No, sir; but a large percentage of those taken over from the French.

BUILDINGS TAKEN OVER FROM THE FRENCH.

The CHAIRMAN. How many buildings in use to-day are included in the plant taken over from the French Company?

Mr. SMITH. I should say something like 1,500 of their buildings; that is, residences, offices, and stations. These buildings were old and dilapidated when we got them, and it was necessary to repair them in order to keep them in good condition. As for our new buildings put up within the last three years, they require almost constant repainting.

The CHAIRMAN. Where a building is intended to be used for only six or seven years, the absence of any paint would not affect it, would it? The lumber would not last any longer, at any rate?

Mr. SMITH. The roofs of all these buildings are metal, which takes constant repainting.

The CHAIRMAN. I can see that in order to preserve the roofs, painting is necessary; but, so far as the lumber is concerned, it will become worthless when the Canal is completed, and I do not think that an annual painting is necessary. If I were permitted to express an opinion, I should say it might be well to use lime and water.

Colonel GOETHALS. Lime and water would not last long in some of our hard rains.

Mr. SMITH. That is a very hard thing to estimate. This was called to my attention only this afternoon, and I am not prepared to say

that it is excessive. It looks like a very considerable amount for repairs. But lumber and metal deteriorate very fast in this country.

Colonel GOETHALS. There were 2,265 buildings received from the French Canal Company. Two hundred and fifty-two were repaired during the year and 113 destroyed. There are 678 of these buildings yet remaining to be repaired, remodeled, or demolished.

The CHAIRMAN. This \$235,000 does not include repairs to any French buildings?

Mr. SMITH. That makes 1,500 old French buildings in use, as I stated before.

Mr. TAYLOR. How do you make that?

Mr. SMITH. One hundred and eighteen demolished and 668 yet to be repaired, out of a total of 2,200, making approximately 1,500 in service.

The CHAIRMAN. Do you know what the aggregate cost of repairing the French buildings has amounted to?

Mr. SMITH. No, sir; I have never seen the figures.

REPAIRS TO HOTELS.

The CHAIRMAN. You have an estimate here of \$25,000 for repairs on hotels. Is that your estimate?

Mr. SMITH. No, sir; that is the estimate of the Building Department. I have hotels, mess houses, and kitchens, about 70 buildings, which must be taken care of.

The CHAIRMAN. Any French buildings to be repaired?

Mr. SMITH. In the mess houses we use for Europeans, about 25, I should say about half are French buildings converted.

The CHAIRMAN. Is this hotel at Culebra an old French building?

Mr. SMITH. No, sir; it was built very soon after this work was started, and is four years old.

The CHAIRMAN. Are there any other hotels along the line of the Canal used as messes and quarters both?

Mr. SMITH. At Corozal and at Cristobal.

Mr. BRICK. Does that \$235,000 cover additions to any buildings?

Mr. SMITH. Yes, sir.

The CHAIRMAN. What buildings do you propose to add to out of that appropriation?

Mr. SMITH. It often happens that in placing new forces we have to add to or change the buildings somewhat, to adapt them to whatever class of men we have to feed. For instance, I am just taking over the old camp at Miraflores. I have got to take two or three buildings and make a mess hall out of them, and that cost would naturally be charged against this fund.

The CHAIRMAN. Are you a mechanic?

Mr. SMITH. No, sir.

The CHAIRMAN. You have a man under you who makes these estimates for repairs?

Mr. SMITH. No, sir; I call on the Building Department for all estimates.

The CHAIRMAN. The Building Department determines when repairs are needed, and you recommend them?

Mr. SMITH. In matters pertaining to quarters, I generally do.

The CHAIRMAN. Is this estimate, \$50,000 for storehouses, within your jurisdiction?

Colonel GOETHALS. That is Mr. Tubby's estimate.

The CHAIRMAN. Did the Commission or anyone make an estimate on the French buildings that are now in use?

Mr. SMITH. Not that I know of.

Mr. BRICK. Have you any idea of what the French buildings were worth to us when we took them over, before you put repairs on them?

Mr. SMITH. No, sir.

MARRIED QUARTERS—POLICY AS TO SAME.

The CHAIRMAN. Suppose, Mr. Smith, Congress should deem it unnecessary to longer continue the policy of providing married quarters for employees, say, after a given time, the 1st of July, 1908, or the 1st of January, 1909. What saving would that be to the Government in the cost of canal construction? Have you made any estimate on that?

Mr. SMITH. I made an estimate on the number of quarters that it would take to meet present demands and cease further construction. If we go on, under the rule that we are operating now, building houses, it will never end, and I recently made a suggestion which I thought would end it, with the construction during the period of the fiscal year 1908-9.

The CHAIRMAN. The fiscal year 1909?

Mr. SMITH. Yes, sir; if we were to build houses enough between this and July, 1909, to take care of the demands that are in sight, practically in sight at this time, then stop; and do it by changing our plan of engaging our people, not practically guaranteeing family quarters. That will take \$1,000,000.

The CHAIRMAN. Require \$1,000,000?

Mr. SMITH. The most of that is in this present estimate. Nearly \$600,000 of it is in here now.

The CHAIRMAN. What do you estimate for the furniture for these additional houses? Is this covered by the \$115,000 estimated for furniture?

Mr. GARDNER. One million dollars for quarters and \$200,000 for furniture?

Mr. SMITH. In the buildings alone there will be used \$1,000,000.

Mr. GARDNER. What about the furniture?

Mr. SMITH. I have already estimated in the past two years for nearly furniture enough. I would only have to have, over and above my estimate, about \$28,000 for furniture, even if we carried out this plan.

Mr. GILLET. Do you think you will be able to get men enough if you change your contract and do not offer houses?

Mr. SMITH. Yes, sir, I do; because by building according to this suggestion we will be prepared to take care of 25 per cent of the force as married people, and I believe that on this work 25 per cent married men will keep up the force.

Mr. GILLET. When do you think that should go into effect, 1908 or 1909?

Mr. SMITH. My proposition is to change our contract beginning with the 1st of January, and then to people that we bring down after the 1st of January we are not obligated to furnish quarters, but to those on the ground we are.

The CHAIRMAN. And you say that there are practically five hundred of these?

Mr. SMITH. Yes, sir.

The CHAIRMAN. Do you mean to say that these five hundred buildings will cost \$1,000,000?

Mr. SMITH. The buildings in my estimate for 1908-9 would cost \$737,000. For buildings in addition to this that have been authorized now, \$236,000, which would probably make a deficiency in 1907-8. 1908-9 is almost covered. I have estimated for \$737,000, and over \$600,000 of this amount is available to apply on this for quarters.

The CHAIRMAN. How much do you estimate, Mr. Smith, it would cost to build the houses necessary to meet the applications now on file?

Mr. SMITH. It could not be done for much less than \$1,000,000, Mr. Chairman.

Mr. BRICK. Would that fulfill all your promises?

Mr. SMITH. Yes, sir. That with the additional changes.

The CHAIRMAN. By that time you will have all the married men that you will get until the Canal is completed?

Mr. SMITH. That will give us 1,500 family quarters on the Isthmus, which will be sufficient, on account of the varying condition of our forces. A great many of them do not stay.

The CHAIRMAN. That will be all that you need, so that changing the policy now and just providing enough quarters to take care of present needs will work no hardship?

Mr. SMITH. No.

The CHAIRMAN. Mr. Smith, let me ask you this: When did the Commission adopt the policy of furnishing coal and light free?

Mr. SMITH. About a year ago; the 19th of November, 1906.

The CHAIRMAN. Up to that time they were charged for their fuel and light, were they not?

Mr. SMITH. Well, now, I do not know that they were charged for their fuel. They were charged for their light, I think. You see at that time we did not have so many married people. But the light was charged for; they had to buy their own oil.

Mr. MADDEN. They have to buy their own oil now, where there are no electric lights, don't they?

Mr. SMITH. Yes, sir.

The CHAIRMAN. It is a fact, Mr. Smith, that on September 5, 1904, on motion of Mr. Grunsky, it was resolved—

That salaried employees of the Commission, including salaried employees of the government of the Canal Zone, shall be permitted to purchase coal and subsistence stores from the material and Supplies Department, which shall charge for the same the cost at place of delivery, with 10 per cent added, and that such employees shall be permitted to obtain electric-light service from any electric-light system installed or leased by this Commission; provided, that such service can be rendered without interfering with the efficiency of the public service; and, provided further, that the district within which the premises to be lighted are situated shall have been already wired. The charge for electric lighting with 16-candlepower lights shall be for the first ten lights or less at the rate of 75 cents each per month, and for lights in excess of ten, 50 cents each per month.

Now, Mr. Smith, that continued until November of last year?

Mr. SMITH. I do not know. I can not recall a case where there was anything paid for either light or fuel since I have been on the

Isthmus. The light was paid for generally by the Department that had the house. Before I came here there were a great many departmental assignments. The Department took the houses and assigned them to their men, and we furnished the fuel and light for them. I do not believe the records of the Commission will show that there has been a bill made against any individual for his light or fuel.

The CHAIRMAN. Then this regulation was not observed?

Mr. ROGERS. I was present at that meeting, Mr. Chairman, and there was some question as to the difficulty of installing lights, etc.

The CHAIRMAN. Now, at the present time do we wire houses?

Mr. SMITH. Yes, sir; we wire them and put in all the fixtures.

The CHAIRMAN. Furnish the fixtures?

Mr. SMITH. Yes, sir—

Colonel GOETHALS. And renew the lamps.

Mr. BURLISON. If there was a nominal charge for these lights would it not result in the heads of the families economizing in the use of the light?

Mr. SMITH. Yes, sir. I do not think there would be any doubt of it—

Colonel GOETHALS. Not if there was a set price for lamps.

The CHAIRMAN. Do you know anything about the estimate at the bottom of page 14, "Miscellaneous Buildings?"

Mr. SMITH. No, sir; I do not know about that.

The CHAIRMAN. Yet you have charge of horses and mules?

Colonel GOETHALS. That comes under Mr. Tubby.

Mr. SMITH. Would you allow me to have this letter, which I wrote Colonel Goethals in regard to these quarters, go into the record?

The CHAIRMAN. Yes, sir; I would be very glad to have it.

Mr. SMITH. Here it is. (Reads:)

CULEBRA, October 28, 1907.

Col. GEO. W. GOETHALS,

Chairman, Culebra.

SIR: The question of supplying quarters, and particularly married quarters, requires serious consideration. There is danger of making too great an outlay in construction for the average time of use or occupancy. The fact that the maximum number of families housed will not be the average for the period of construction of the same, calls for some limit to building operations. At the same time we must consider the fact that we are employing everybody to-day with the same guarantee of quarters that was made three years ago. We should take steps to so arrange matters that all buildings needed for living quarters would be constructed by the end of the fiscal year 1908-9. I submit the following for consideration:

First. Discontinue all building and supply quarters only within present existing buildings and those authorized.

Second. Build houses so as to supply every employee applicant with quarters.

Third. A restricted appropriation sufficient to erect a certain definite number of quarters.

The first course would work hardship to all, for the Commission would be unable to fulfill its contracts with either its old or new employees. As shown by my letter of October 1, the waiting list, after deducting assignments for all existing vacancies, houses now under construction and houses authorized but not started, is 282. These 282 applicants would have to take their chances on natural vacancies—that is, vacancies caused by resignation, discharges, etc., the total of which would probably not exceed 20 per month, at which rate it would take 15 months to clear the lists, even if not a single new application were submitted in this period.

The approval of the second course would hardly be less prejudicial to the interests of the Commission, for directly and indirectly it would interfere with the progress of the construction work proper. It would entail the maintenance

of the building department indefinitely, at its present status, and even increase; it would mean a necessary enlargement of commissary facilities, transportation facilities on land and sea, an increase in force for this department, and other purely auxiliary departments; it would distract attention from and tend to retard the realization of the main purpose of the Commission—to finish the canal as quickly as possible and, in justice to the taxpayers of the nation, as cheaply as possible.

The third course seems to be the most feasible and satisfactory in every respect. To contract to supply married quarters no longer seems necessary, viewed from any standpoint. The wages paid and the accommodations offered are sufficient to attract good men, either single or married. A nucleus of at least 800 families is at present on the Isthmus, or almost 20 per cent of our force of white Americans. Three years have passed since work was commenced, and the period remaining, though seemingly long, is not so excessively so that it should be regarded as impossible to hold single men during that period. The majority of the higher-salaried men on the job are already provided with married quarters. It would seem perfectly feasible to amend paragraph 4.

"When the exigencies of the steamship service permit, members of the immediate family of an employee will be granted, upon request, the Government rate on the steamers of the Panama Railroad Company operating between the United States and Cristobal. No charge will be made for children under 6 years of age, and half rates will be charged for children between the ages of six and twelve years. An employee will not be permitted to take his family to the Isthmus until he has first gone there and secured quarters for them." And part of paragraph 7:

"Where practicable and in the best interests of the service, an employee will be provided with such quarters on the Isthmus as may be available from time to time. Family quarters will be assigned when available, assignments to be made in accordance with date of application. Experience shows that about ten months elapse between application and assignment."

Of the General Conditions of Employment; to hire none but single men, except in exceptional cases, and in such cases to employ married men without the contract obligation to supply family quarters.

Even if this were done the necessity remains of providing for the old employees of the Commission to whom the promise of married quarters has been extended.

On October 1 the number of applications in excess of accommodations was 351, taking into consideration quarters completed, under construction, and authorized. Of these, 114 applications were submitted since September 1, leaving 237 submitted prior to that date. The General Conditions of Employment state that "family quarters will be assigned when available, assignments to be made in accordance with date of application. Experience shows that about ten months elapse between application and assignment." Although a number of the employees submitting applications since September 1 are old men, there is no reason why they should not have applied earlier, and the Commission is under no moral obligation to provide quarters before July 1, 1908, ten months from September 1 and the beginning of the next fiscal year. Making an allowance for natural vacancies, 150 can be assumed as a minimum of applicants to be taken care of by the erection of new quarters before July 1, 1908, if these are apportioned as below—

Married quarters 1907-8.

Gatun, 5 type 14, 5 type 17-----	\$42, 485. 00
Ancon Hospital, 1 type 17-----	2, 430. 00
Gorgona, 5 type 14, 2 type 17-----	35, 195. 00
Cascadas, 3 type 14-----	18, 201. 00
Empire, 7 type 14-----	42, 469. 00
Culebra, 4 type 14-----	24, 268. 00
Paraiso, 1 type 14-----	6, 067. 00
Pedro Miguel, 2 type 14-----	12, 134. 00
Ancon, 6 type 14, 1 type 17-----	38, 832. 00
East La Boca or Miraflores, 2 type 14, 1 type 17-----	14, 564. 00
Totals, 35 type 14, 10 type 17-----	236, 645. 00
22573-08-20	

the cost of erection would be \$236,645, which would not be a very large sum to add to our deficiency appropriation.

If the suggested changes were inserted in the General Conditions of Employment and made effective January 1, the problem of estimating for the needs of the ensuing year could be solved with reasonable exactitude.

If after January 1, the promise of married quarters is withdrawn, 400, or at the most, 450 sets of quarters would be all that the Commission would feel obligated to build during the year 1908-9; for the only application to be considered would be those from old employees, and as a majority of the applications now being submitted are from new arrivals on the Isthmus, the number of applications from old employees would not be liable to run in excess of this figure. This, in addition to the 150 recommended for the balance of this fiscal year would give us a maximum of about 1,300 employees occupying married quarters at the end of the fiscal year 1908-9, or over 25 per cent of our present white force, which I estimate is the maximum, and which must begin to decrease within the next two or three years on account of readjustment and the near approach to completion of some features of the work. In considering the distribution of the quarters, the territory between Gorgona and Gatun need not be considered, as the work there will not endure for any great period, and the demand for quarters in that district will not be great. The policy should be to erect the greatest number of houses where they will be the most permanently useful, as at Gatun, Pedro Miguel, and Ancon, which will also probably be the points of greatest demand.

I have not taken into consideration any quarters other than married quarters, for the requirements for other classes of quarters are small. There are ample facilities for quartering all laborers, white or black. It looks as if there were enough bachelor gold quarters, although it may become necessary to erect a few additional Type 18 houses at La Boca, Pedro Miguel, and Porto Bello. The total of such would be small, and would probably come within the estimate for the fiscal year 1908-9.

I would recommend:

First: That provision be made for the erection of 35 Type 14 houses, 10 Type 17 houses, and for the houses of any new officials during the remainder of 1907-8, and that for this purpose an additional \$300,000 be requested. (Table p. 4.)

Second: That effective January 1, 1908, the following provision be stricken from the conditions of employment: "Family quarters will be assigned when available, assignments to be made in accordance with date of application. Experience shows that about ten months elapse between applications and assignments."

Third: That provision be made for the erection of houses during the fiscal year 1908-9 according to tabulated statement attached (p. 7), and that an appropriation sufficient for this expense be made.

Respectfully,

JACKSON SMITH,

Commissioner, Head of Dept. of Labor, Quarters, and Subsistence.

Married quarters 1908-9.

Ancon, 10 Type 14, 10 Type 7.....	\$84, 970. 00
Pedro Miguel, 5 Type 14, 5 Type 17.....	42, 485. 00
La Boca or Miraflores, 10 Type 14, 5 Type 17.....	72, 820. 00
Paraiso, 5 Type 14, 5 Type 17.....	42, 485. 00
Culebra, 10 Type 14, 5 Type 17.....	84, 970. 00
Empire, 10 Type 14, 5 Type 17.....	72, 820. 00
Las Cascadas, 5 Type 14, 5 Type 17.....	42, 485. 00
Gorgona, 10 Type 14, 5 Type 17.....	72, 820. 00
Gatun, 11 Type 14, 11 Type 17.....	93, 467. 00
Cristobal, 10 Type 19.....	62, 970. 00
Quarters of officials as needed, 15 Type 21.....	65, 175. 00

Total, 76 Type 14, 61 Type 17, 10 Type 19, 15 Type 21..... 737, 467. 00

Construction of quarters, 1906-7.

FAMILY QUARTERS.

10 Type 7, Accommodating 20 Families-----	\$35,920.00
7 Type 8, Accommodating 7 Families-----	38,962.00
1 Type 8—A, Accommodating 1 Family-----	5,860.00
2 Type 10, Accommodating 2 Families-----	7,440.00
76 Type 14, Accommodating 304 Families-----	461,092.00
41 Type 15, Accommodating 41 Families-----	85,895.00
46 Type 17, Accommodating 46 Families-----	111,780.00
3 Type 19, Accommodating 6 Families-----	18,891.00
Total, Accommodating 427 Families-----	765,840.00

BACHELOR QUARTERS.

15 Type 18, Accommodating 720 Men-----	145,800.00
7 Type 16, Accommodating 84 Men-----	22,750.00
37 Type 15, Accommodating 888 Men-----	203,685.00
Total, Accommodating 1,692 Men-----	372,235.00
13 Dormitories for help-----	18,690.00
20 Bunk houses, accommodating 1,680 laborers-----	49,780.00
10 Colored married quarters, accommodating 100 families-----	29,610.00
Total-----	98,080.00

NOTE.—153 other buildings for miscellaneous purposes, principally connected with the needs of the hotels and commissaries. The above are buildings already constructed, according to Annual Report of this Department, and the data is submitted here simply for reference.

Mr. GARDNER. Suppose you adopt this change of policy and cease to furnish houses after you have built five hundred more, and men come down here and find that discrimination is made against them and in favor of the older employees, who have light, fuel, water, and houses, and they do not—what will be the effect, do you imagine, upon men who come here? Don't you think that it will breed discontent? Don't you think they will feel that they are unjustly discriminated against?

Mr. BURLISON. I do not feel that it will be a discrimination. They will be given notice that they will have to take their turn in being assigned to houses when vacated.

Mr. SMITH. That was my idea exactly. With 1,500 houses the people who come down here after the 1st of January can occupy family quarters only when vacated.

Mr. GARDNER. Is this the same way with the bachelor quarters?

Mr. SMITH. We are pretty well fixed for bachelor quarters. We will have to build very few more bachelor houses.

Mr. MADDEN. You have about as many now as you will ever need?

Mr. BRICK. In the case of new bachelor employees where will they live?

Mr. SMITH. Well, we have bachelor quarters enough, with very few changes and additions—

Mr. BRICK. Until we complete the Canal?

Mr. SMITH. Yes, sir.

Mr. GILLET. I think we should charge rent for all of them.

Mr. BRICK. That would have been a good plan from the beginning.

Mr. MADDEN. I do not think that it is at all improper for this Committee to say to the Chairman that we believe it is unwise to continue the construction of buildings.

The CHAIRMAN. When the Sundry Civil Bill is reported to the House it may contain such a provision.

Mr. BURLESON. I myself think that some notice of this should be given in advance.

Mr. GRAFF. These contracts were not made in pursuance of any law of Congress, but in pursuance of a policy adopted by the Commission.

The CHAIRMAN. Is there anything further which you wish to submit to the Committee? If there is not, we will adjourn to meet tomorrow morning.

ANCON, CANAL ZONE, ISTHMUS OF PANAMA,
November 12, 1907.

**STATEMENT OF COL. W. C. GORGAS, U. S. ARMY, COMMISSIONER
AND CHIEF OF DEPARTMENT OF SANITATION.**

Present: Messrs. James A. Tawney, Washington Gardner, Frederick H. Gillett, Joseph V. Graff, Abraham L. Brick, J. Warren Keifer, Martin B. Madden, George W. Taylor, and Albert S. Burleson, members of the Committee on Appropriations, and Mr. James R. Mann, member of the Committee on Interstate and Foreign Commerce, House of Representatives, in the Fifty-ninth Congress, and Members-elect to the House of Representatives in the Sixtieth Congress, with Mr. James C. Courts, clerk to the Committee on Appropriations.

The CHAIRMAN. Colonel Gorgas, you are one of the Commissioners of the Isthmian Canal Commission and now have in charge the Sanitary Department?

Colonel GORGAS. Yes, sir.

The CHAIRMAN. How long have you been here?

Colonel GORGAS. I was made sanitary officer in June, 1904, and first came down in March, 1904.

The CHAIRMAN. You have been here continuously ever since?

Colonel GORGAS. Yes, except for leaves.

The CHAIRMAN. For the purpose of making the record here in the Committee, will you briefly describe the sanitary conditions that prevailed on the Isthmus in the Canal Zone and in the two cities when you took charge?

FORMER SANITARY CONDITIONS.

Colonel GORGAS. The new French company had been carrying on their work for a number of years with a very small force, about a thousand men, for the purpose of retaining the franchise, so that their buildings and property had dropped into a condition of semi-decay. The two towns of Panama and Colon had decreased in population in the fifteen preceding years, and from being prosperous, busy towns as the result of the expenditures by the old French company they had been reduced to comparatively little towns, with little business done, and the conditions were like those of other tropical cities of the same size and in the same depressed condition. The condition of the Canal Zone was about like that of a country that had been occu-

ped by a nonmoving population for twenty years, say. The conditions were about the normal conditions for a tropical country, with no very big business going on.

The CHAIRMAN. What was the condition of the streets in the cities of Panama and Colon?

Colonel GORGAS. The streets were paved with cobblestones. Of course there was no sewage system. It was the system of night-soil collecting in pits and vessels which prevails in most of the tropical Latin-American countries. There was no general water supply. They got their water from cisterns and wells all through the cities and in the outskirts.

The CHAIRMAN. What was the condition of health of the people on the Zone when you came down here?

Colonel GORGAS. I see what you are driving at. There were no extraordinarily bad conditions at the time we came. It was the normal condition of a tropical country. You see, the old French Company had been gone since 1888, and there had been no large body of nonimmunes since that time, and no congestion of the population. The condition when I came was not bad in the sense that any larger mortality or any larger epidemic was going on than would occur in the interior of Colombia, or any backward country of the Tropics.

The CHAIRMAN. That was true of the cities of Colon and Panama also?

Colonel GORGAS. Yes; that was true of the cities of Panama and Colon. Of course the normal conditions were bad. The death rate ran up to nearly 60 per thousand. You will find, however, that the death rate of the City of Mexico is about that at present.

DISEASES THAT WERE PREVALENT FORMERLY.

The CHAIRMAN. Will you state what diseases were most prevalent?

Colonel GORGAS. All forms of malaria were the prevailing diseases in the two towns. They were having some yellow fever, but not a great deal, yellow fever being dependent upon the number of nonimmunes brought in. In the town of Panama they were having a considerable amount of beriberi, which is a tropical disease; but consumption is a larger cause of death. They were not having water-borne diseases to any extent at that time.

HEALTH CONDITIONS NOW.

The CHAIRMAN. What are the health conditions now?

Colonel GORGAS. The health conditions have been largely improved over the former conditions. The report for our employees for last October would show a constantly sick rate of 26 per thousand. Of course we can not give a sick rate on the general population. We could only compare that with the Army and Navy, or some other considerable organization.

The CHAIRMAN. How does it compare with the sick rate of the Army and Navy?

Colonel GORGAS. The sick rate for the previous calendar year just reported was in the neighborhood of 50 per thousand. But, of course, in making a comparison, that is not exactly fair, because the Army sick rate would include men laid up with minor troubles that would not come on our sick rate. For instance, a soldier mashes

his finger and his company commander will not have him for duty until his finger is well. He would go on the sick list. Here, of course, with a thing like that, he would lose his pay if he came into the hospital, and rather than do that he would go on working, unless his finger became inflamed. I judge from the death rate of our employees last year that our American death rate is about the same as that in the Army, so that I presume that our health conditions for the white Americans are about the same as those of the Army. Of course, when it comes to other classes, the death rate is larger.

DISEASES THAT ARE MOST PREVALENT NOW.

The CHAIRMAN. What are the most prevalent diseases now?

Colonel GORGAS. Malaria is much the larger proportion in the sick rate. Pneumonia has been a very large cause of death among the negro portion of our laborers.

The CHAIRMAN. What explanation do you have to make of that fact?

Colonel GORGAS. That it affects the negro so generally as compared with the whites?

The CHAIRMAN. Yes.

Colonel GORGAS. I would put it down principally to a racial peculiarity. In the United States, you know, the negroes are much more affected by pulmonary troubles than are the whites, everywhere in the South. I think it is a racial peculiarity. But outside of that there is a sort of epidemic influence. I think the epidemic of grippé that we had about that time would give a larger number of cases which among the negroes would wind up in pneumonia. The epidemic, at any rate, is subsided. A year and a half ago, for instance, in August, 1906, we had 89 deaths from pneumonia. This past month we had 20 deaths from pneumonia.

The CHAIRMAN. You attribute it almost entirely to racial peculiarities rather than any condition that exists here?

Colonel GORGAS. Yes.

The CHAIRMAN. Or any want of care on the part of the Canal management?

Colonel GORGAS. Yes.

The CHAIRMAN. They care for the negro as carefully as for the white?

Colonel GORGAS. I think so. Of course the fact of their having a disease that causes a considerable death rate like that has an important bearing on the statistics which show the general health conditions. That element may enter into the conditions all the time.

In attempting to decrease the number of cases and to neutralize the tendency toward pneumonia, we have commenced doing various things that we thought would tend to improve health conditions generally, such as having drying closets in the camps, and feeding men instead of allowing them to feed themselves, and improving conditions generally; setting aside buildings where they could sit and read or write in the evenings, and so forth.

This was the condition of the negro that was most prominent when pneumonia commenced: He got up very early in the morning; he goes to work at 6 o'clock in the morning. He got up at half past 4 or 5, and went down and bought enough food for an individual meal. Of course you know how improvident the negro is, and he would get

very little or nothing. He would bring that up and cook it for that particular meal. That would frequently be done in the rain. He would do the same for the noon meal. For obvious reasons he would never buy a whole day's food at once. He would then cook that, insufficiently, and come out again after two hours, after eating that insufficient food, and go around and be exposed to the rain. I suppose every wet day those men were in their wet clothes constantly, and they had no extra clothes when they first came in. They accumulated a few socks and things after awhile, but their habit was to go to bed and sleep in their wet clothes.

In some cases, however, in taking men who had changes of clothing of their own, and who slept not exposed to those drafts, and did not sleep in their wet clothes, we could see no relation between their condition and the incurrence of disease, at least in a large number of cases; and we saw men sick who had dry clothes, as many, perhaps, as those having wet clothes. But in some cases, no doubt, you could bet on a man getting cold in that way. Yet I doubt if pneumonia had any great relation to their condition.

The CHAIRMAN. How long has it been since there has been a case of yellow fever on the Zone, or in either of the two cities, Panama or Colon?

Colonel GORGAS. In May, 1906, the last case occurred in Colon. It was officially reported as yellow fever. There was considerable doubt about its being a case, but it was so officially reported. The case that I myself consider as a case of yellow fever occurred last in Colon in December, 1905; but we have to go on the official reports.

The CHAIRMAN. What diseases are peculiar to that particular climate? What diseases are epidemic here?

Colonel GORGAS. To this part of the country?

The CHAIRMAN. Yes.

Colonel GORGAS. Well, yellow fever is about the only one. Of course we are liable to the bubonic plague. We have never had it, but it is epidemic on the coast above and below us. Yellow fever is the only one that has ever been extensive here.

The CHAIRMAN. What are the conditions, Colonel, that naturally produce yellow fever?

Colonel GORGAS. The condition par excellence, so far as this country here is concerned, is to have present nonimmunes. That is the great requisite. You see it everywhere in the history of these cities. Take a big city like Habana or Rio: they will have yellow fever all the year round, winter and summer. That is due to the fact that they have always every year a considerable number of nonimmunes—people liable to yellow fever—coming in. Take a smaller city like Panama, and for years at a time they will not have yellow fever. But in a period like this last revolution, because Panama was strong in opposition to the government, they brought large numbers of troops down to the cities, and then they had a great amount of yellow fever. In the old French occupation they were constantly bringing in nonimmunes. They had on their rolls about 26,000 whites, and they had a considerable degree of mortality from yellow fever; 25 or 30 deaths a month from yellow fever. The company went on with their work after it failed, employing only about a thousand men, but of course they were men picked from their force and were all immune. Of course yellow fever ceased, with only a few cases

now and then, until the revolution, and then it ran up in the city of Panama again. When we came in they were having a little yellow fever in 1904. A few deaths were reported in 1904. In the beginning of 1905 we had a considerable number of cases, about 250 cases during the year, but it was due to the fact of our bringing in nonimmunes.

MORTALITY RECORD UNDER FRENCH RÉGIME.

The CHAIRMAN. Is there any record, Colonel, of the number of deaths during the time of the construction of the Panama Railroad and the work of the French Canal Company?

Colonel GORGAS. None during the construction of the railroad that I know of, except in such general terms as you would find written upon the Isthmus about that time. There are no figures to be gotten hold of. Those books make statements in general terms. I presume they are approximately correct. Under the French Canal Company there are no records that I think are of any value for determining general numbers at all. They were in this condition: The French Company did their work almost entirely by contract. They had the hospitals, the principal hospital at Ancon, where they received their patients and charged a dollar a day for each patient. On the line, in the villages, they had no control any more than we have over the doing of similar work in the cities. Their employee, if he went home, was like a man here going to his home in New York; the authorities did not know what became of him until he returned to work again.

The statistics we have are these: They report, for instance, so many men at work on such and such a day, which, of course, is accurate. Their rolls would show, running along under the old French Company, to a maximum of 19,000. They would report the deaths principally from Ancon Hospital and the sick that came to the Ancon Hospital. That was the only means they had. They reported some deaths also from along the line, but it was a man now and then who remained in his own quarters or in a sick camp, so that these statistics we have show the total force, but only the number of men who died in Ancon Hospital. Now, it depends upon the relation of that. We show the minimum; that shows a minimum number that died. More than that number died, and more than that number were sick; but above that it is an estimate.

We had an old superintendent under the French, Doctor La Cros-said, who was here for two or three years and made the records of the hospital. He says the number recorded is not very far under. We have talked to Mr. Bunau Varilla, who was a division engineer down here, but a very prominent man, and he tells me he thinks the figures were very much under what actually occurred. I have also talked to the British minister, Mr. Mallet, and he says they gave only a mere fraction, probably a fifth. He judges so from the number of cases, like those among Jamaica negroes, that he came in contact with. He had to do with their property in case of death. I do not think those tables are of any value except as they show the character of the disease.

The CHAIRMAN. What do the statistics, in fact, show as to the number of deaths?

Colonel GORGAS. From 1881 to 1889 in Ancon Hospital there were 1,200 deaths from yellow fever. Of course, that means among the white French employees. Of course, the negroes were not liable to it. There were 5,000 deaths only at Ancon Hospital reported in those eight or nine years. The figures are printed.

CONCERNING YELLOW FEVER.

The CHAIRMAN. What makes a man an immune?

Colonel GORGAS. Having had the disease once. All these native populations, like those of Panama and Rio and Habana, are immune. A man born or raised there is immune. They would hereafter give a certificate to a man born in 1900, or, having lived there ten years, an authority would now give him an immune certificate.

The CHAIRMAN. Whether he had the disease or not?

Colonel GORGAS. Whether he had the disease or not. One of the theories is that in an infected center like that the children all have mild yellow fever, though it is not recognized, and that gives them immunity.

The CHAIRMAN. Now, Doctor, in view of the present health condition of the Zone and at Colon and Panama, and the health condition that has prevailed for almost two years here, what are the causes that would be likely to produce yellow fever in the Zone?

Colonel GORGAS. You mean the causes to bring yellow fever in now?

The CHAIRMAN. Yes.

Colonel GORGAS. Of course we have a large nonimmune population here. That element is prepared for a much greater epidemic of yellow fever than ever occurred before. Then carelessness with regard to breeding places of the yellow-fever mosquito and the practice of allowing breeding places at Colon and Panama to collect, in water barrels and cisterns, so that the yellow-fever mosquito would be allowed to breed and spread in those places, would increase the chances of an epidemic. If under these circumstances the stegomyia mosquito should by any means happen to get in, the ground would be prepared, and the first vessel coming in with a case would be likely to start a case of yellow fever.

The CHAIRMAN. Then, as I understand you, the fever would have to be imported?

Colonel GORGAS. It can not be started here now, under the present conditions, unless a case comes in from the outside.

The CHAIRMAN. So that a strict quarantine or a lax quarantine will determine whether or not we will be able to exclude this disease from the Zone.

Colonel GORGAS. The only thing that would absolutely prevent the disease would be to stop commerce altogether. No quarantine could absolutely guarantee you against a case getting in. The incubation period of the disease is six days from the day a man is bitten until he develops the fever. In all the states we know of where yellow fever abounds, at Guayaquil, Ecuador, for instance, two days out, and three days out, we take everybody, unless he can show an immune certificate, and hold him three days here in quarantine. We know that there is yellow fever there. Since we have had

our quarantine we have had get in past the quarantine three cases of yellow fever. They occurred in this way——

The CHAIRMAN. When did they get past the quarantine?

Colonel GORGAS. Two in 1905, and one last year. But I do not think that by any quarantine you could guarantee yourself absolutely against yellow fever. I think the condition is so now that if the yellow fever is introduced it will not start; and the object of sanitation is to get your locality in such a condition that it will not start when yellow fever is introduced. The only thing that would do that would be the destruction of the *stegomyia*, and their reduction to such a point that it would not start. I believe that we are in that condition now. This case that came from Limon, starting a year ago last winter, arose when we thought there was no yellow fever, and all the reports reported that there was no yellow fever in Limon. We did not detain their passengers. The man afflicted came down from Limon, and the case developed within two days after he arrived in Panama. It was thirty-six hours before I knew, or anybody else knew, he had the fever. In those thirty-six hours, under the French conditions or under the conditions we had twenty years ago, that would have been the beginning of an epidemic of yellow fever such as the French had; but as we had five times the number of nonimmunes we would have had in all probability five times the number of cases of yellow fever.

The CHAIRMAN. What, if anything, do you do for the purpose of informing yourselves regarding the health conditions in the towns and cities tributary to Colon and Panama, the people of which are engaged in commerce with those outside people?

Colonel GORGAS. We get a weekly report from the Treasury Department of the United States, the Public Health Service, who have men stationed all around the coasts above and below us. For instance, they have a man at Guayaquil. They have a man also down in Chile, and they have a man in Bocas del Toro. They have a man at Limon and a man at Cartagena. They have representatives at all the principal ports. We have representatives there in the summer season who report to us in the yellow fever season, and some of them are there all the year round.

The CHAIRMAN. They report to you, and if there is any yellow fever in those places they are quarantined against?

Colonel GORGAS. We hold nonimmunes if we get a Public Health report concerning the port which they left. For instance, if there is a case of yellow fever at Port Limon, we hold the nonimmunes arriving from that port.

The CHAIRMAN. What, if anything, do you do to minimize or reduce the number of yellow-fever mosquitos in the towns around here?

Colonel GORGAS. They have been pretty well got rid of. Take Panama, for instance. The yellow-fever mosquito is a very delicate mosquito, easily killed by being blown around by the wind, so that it sticks close to the house where it is bred and hatched. It breeds almost always in clean fresh water, around habitations. Rain water is the great source—barrels, cisterns, gutters, wells, and so forth—so that it is distinctly a town mosquito. Panama is divided at present into six inspection districts. Each inspector gets around once in every five days, going into each house and yard and reporting on the slop and the fact that there is any *stegomyia* mosquito breeding places

in gutters and wells and cisterns, so that the health officer of Panama knows how many breeding places there are which have not been guarded against by the measures taken. Then measures are taken to correct that particular fault. If it is a water barrel, with the stegomyia in it, it is just upset and the man is reported to the Alcade and fined. If it is in the gutters, steps are taken to remove the trouble. If somebody would say he saw a stegomyia in the Tivoli Hotel, I would doubt it; I doubt if he would recognize it. In such a place as this the only probability of stegomyia would be in the gutters around. There is one species of mosquito, the anopheles, or malaria mosquito, that has white legs. Another species of mosquito, which is harmless, is the culex, a big mosquito with a band around it. Mosquitoes are scarce anywhere in Panama, and it is hard to find them. I have not felt or seen one at the Hotel Tivoli.

SAFEGUARDS AGAINST YELLOW FEVER.

The CHAIRMAN. What does the Sanitary Department do when a vessel comes into Panama—or from any of these South American ports, either on the Atlantic or Pacific coast—for the purpose of determining the health conditions of the vessel on which the passengers arrive?

Colonel GORGAS. The principal port which we watch most closely now is Guayaquil, just below us. The quarantine officer goes aboard when a vessel from there comes in, and ascertains the number of non-immunes, the recognized nonimmunes—those from Guayaquil that are certified to by the public-health service man stationed there. He, being on the ground, does his best to find out whether a patient has had yellow fever or has been there a sufficient time to be considered an immune; and those people looked upon as nonimmunes are brought up to our quarantine station and kept over for three days, until their period is made up. It is the same on the other side. We are quarantining now against Limon, Cartagena, and several of the large cities down on the lower coast.

The CHAIRMAN. What do you do with respect to the passengers or people coming from ports on either coast where you have no quarantine against such ports?

Colonel GORGAS. And where they are not suspected?

The CHAIRMAN. Yes.

Colonel GORGAS. No; we take no measures against them. It is like vaccinating, which is a measure of protection for the whole Zone.

The CHAIRMAN. Are measures taken by doctors of the Marine Hospital Service? Is there any inspection whatever of people coming out of ports like Colon and Panama?

Colonel GORGAS. They are inspected just as they are in the States.

The CHAIRMAN. So that, as I understand you, the only possibility under the present conditions of introducing yellow fever into the Canal Zone or into the cities of Panama and Colon would be to come from some other place, and just as soon as you have any information of the existence of yellow fever in any of those South American ports they are quarantined against, and the passengers coming from there are detained until their condition is ascertained definitely?

Colonel GORGAS. Yes; that is correct.

The CHAIRMAN. So that there is nothing in the conditions here at present naturally to produce yellow fever?

Colonel GORGAS. There has to be that factor of infection introduced from the outside.

The CHAIRMAN. The infection has to be introduced from outside?

Colonel GORGAS. Yes, sir.

Mr. KEIFER. I want to ask you a question or two before going away from the question of yellow fever. It requires a genuine case of yellow fever and the stegomyia in order to inoculate those who are non-immune?

Colonel GORGAS. Yes; and the presence of a considerable number of nonimmunes.

Mr. KEIFER. Is it possible for the stegomyia to be brought in infected, so that it might, in contact with a nonimmune, spread yellow fever?

Colonel GORGAS. It is entirely possible; but personally I do not look upon it as probable. You see, it is possible, but I do not believe yellow fever is conveyed in that way very often.

Mr. KEIFER. I want to ask you whether the stegomyia, having bitten a yellow-fever patient, after, say a period of four days of the disease, would become so infected that it would spread the disease?

Colonel GORGAS. No; it is considered that the patient will not transmit the disease after the third day.

Mr. KEIFER. I thought it was the fourth.

Colonel GORGAS. No, the third.

Mr. KEIFER. Another question: After the mosquito has bitten the patient within three days, how soon after that is the mosquito in a condition to impart yellow fever to a nonimmune?

Colonel GORGAS. From twelve to twenty days, according to the season; more rapid in the summer than in the winter. If you had a case of yellow fever in, and it was going to spread, it would depend upon the number of nonimmunes.

Mr. KEIFER. Twelve days at least would have to elapse after the mosquito had bitten a patient, and that patient in the first three days of the disease?

Colonel GORGAS. Yes.

Mr. KEIFER. Now, this question: How long would the mosquito continue to be in a condition to impart the disease after the twelve days had elapsed?

Colonel GORGAS. Indefinitely, probably. When we were vaccinating in Havana we had a mosquito that was sixty-five days between the last and first imparting of the disease that it gave.

Mr. KEIFER. Then it would be practically throughout its life?

Colonel GORGAS. Yes.

Mr. KEIFER. If you could screen a patient from the mosquito for the first three or four days there would be no danger?

Colonel GORGAS. Yes, but it is practically impossible to insure that.

Mr. KEIFER. But it does a great deal toward it?

Colonel GORGAS. Yes; but I do not think it is by any means the most important measure. The destruction of the breeding places of the stegomyia is the most important measure.

Mr. KEIFER. Of course, if you have not the stegomyia you will not have the disease at all.

Colonel GORGAS. That is the most practical step toward the destruction of the disease.

HOSPITALS ON THE CANAL ZONE.

The CHAIRMAN. How many hospitals have you, Colonel, between Panama and Colon?

Colonel GORGAS. I can state the number in general terms. Of places where we receive people, all told, we have 45; that is, of every character of building in which we treat patients.

The CHAIRMAN. About one for every mile in length of the Canal Zone?

Colonel GORGAS. Yes, sir. I have the figures right here. Of hospitals where we have some considerable equipment we have 13. In addition to those we have 14 more much less nicely equipped. In all these large camps one barrack building is assigned in which cases are detained and one doctor is in charge, who goes there once a day, where they are held until they can be transferred the next day, or if they recover next morning a great many are sent back to duty. We report those as sick camps. Besides those we have 17 dispensaries and various other places along the line where there is a sign put up to the effect that the office is open at such a time and where a doctor goes at those hours to see people and give those medicine who come up.

The CHAIRMAN. How many doctors do you have?

Colonel GORGAS. We have at present 100; that may be one or two more or less. I will have to refer to my data.

NUMBER OF PATIENTS TREATED.

The CHAIRMAN. How many patients will your hospitals, all told, accommodate?

Colonel GORGAS. The hospitals at a squeeze will accommodate 2,165.

The CHAIRMAN. That is, all of them?

Colonel GORGAS. That includes everything.

The CHAIRMAN. Two thousand one hundred and sixty-five beds we have at a squeeze.

Colonel GORGAS. Two thousand one hundred and sixty-five patients.

The CHAIRMAN. What is the largest number of patients you have ever had in the hospitals here at one time?

Colonel GORGAS. About 1,700.

The CHAIRMAN. When was that?

Colonel GORGAS. That was in the past August; early in August.

The CHAIRMAN. Was there anything peculiar in the conditions at that time that made the number larger than usual?

Colonel GORGAS. The rule has been here, in the three years that I have been here, that, commencing in the middle of May, when our sick rate is lowest—the middle of May would be the early part of the wet season—the sick rate begins from then to rise, and rises up to the middle of August, when it is at its maximum; then it slowly falls, with fluctuations along through the winter, and so on until the middle of May again, when it is smallest.

The CHAIRMAN. How many of those 1,700 were common laborers on the silver and gold rolls?

Colonel GORGAS. About 1,200 of those were employees.

The CHAIRMAN. So that there were only about 500 whites in the hospitals?

Colonel GORGAS. Only about 500 nonemployees.

The CHAIRMAN. You did not understand my question.

Colonel GORGAS. One thousand seven hundred was the total number in the hospitals, including employees and nonemployees.

PANAMANIANs TREATED IN SANTO TOMAS HOSPITAL AND ANCON HOSPITAL.

The CHAIRMAN. What do you mean by "nonemployees?"

Colonel GORGAS. A person not in the employment of the Commission, like a Panamanian insane patient, for example, that they would take from the Panamanian Government, or a destitute patient on the Zone, which one of the municipalities sends to us, or a leper from the Panamanian Republic.

The CHAIRMAN. Do we take care of the insane of the Panamanian Government?

Colonel GORGAS. Yes, of the insane of the Panamanian Government.

The CHAIRMAN. Is that in accordance with treaty between the United States and the Panamanian Government?

Colonel GORGAS. No; that is by virtue of an agreement made with the Panamanian Government, I think in December, 1904.

Mr. BURLESON. Who made it?

Colonel GORGAS. It was made between Mr. Taft and the Panamanian Government, the idea being, as far as the insane were concerned, that inasmuch as they have no provision for the insane, as in most of the Latin-American Republics, the insane were kept in their prisons.

The CHAIRMAN. Do they pay us for the maintenance of those insane?

Colonel GORGAS. Yes; 30 cents a day.

The CHAIRMAN. Do they also pay us for the maintenance of the lepers in our leper hospital?

Colonel GORGAS. Yes; the same sum, 30 cents a day.

The CHAIRMAN. Now, those are nonemployees. How many of them were there in the month of August?

Colonel GORGAS. About 500.

Mr. BURLESON. I would like for the record to show right there what it costs the Government to maintain a leper, and what it costs to maintain an indigent patient.

Colonel GORGAS. The figures in general terms are given in the paper. I can give it to you pretty nearly.

Mr. BURLESON. You can insert them when you come to revise your remarks, Colonel.

Colonel GORGAS. I can give it approximately.

Mr. BURLESON. There all 11 lepers. How much does it cost to maintain them?

Colonel GORGAS. For these present seven months the total expense for each person in the leper's island was \$1.10 a day.

Mr. MADDEN. What did that include?

Colonel GORGAS. Everything except the buildings and permanent equipment.

Mr. MADDEN. Did it include the attendants?

Colonel GORGAS. Yes.

Mr. MADDEN. How many attendants have you?

Colonel GORGAS. We have a man in charge and three attendants, I think.

Mr. MADDEN. What do you pay them?

Colonel GORGAS. Those are all given in the estimate. We pay the man in charge \$125 a month, and the attendants \$60 in silver per month, with their board.

Mr. MADDEN. How much does it cost to board them?

Colonel GORGAS. The cost of our ration runs between 30 and 35 cents.

Mr. MADDEN. It costs \$180 for the three attendants and \$125 for the man in charge. That is \$300, and you have 11 patients. That would be \$30 for each patient, and then the cost of feeding the patients, and it costs also to feed the man in charge and the attendant. How much, about, per day, would it cost to keep them?

Colonel GORGAS. The same ration, 30 cents. I figure it \$1.10 a day.

Mr. MADDEN. I make it \$1.40 without any charge for the maintenance of the buildings, or anything of that kind.

Colonel GORGAS. Of course the number of lepers varies. There might have been more. There were 14 or 16 part of the time.

Mr. BURLISON. What becomes of them? Where do they go? Do they die or escape?

Colonel GORGAS. They die.

The CHAIRMAN. At this point Mr. Rogers informs me that he is familiar with the negotiations with the Panamanian Government with regard to the maintenance of those lepers, and if you will allow him to make a statement concerning it, it will serve the purpose of clearing up the record.

Mr. ROGERS. That was one of the matters that we had up with the Panamanian authorities, to increase the rate for the maintenance of the lepers and for the insane and indigent poor. I recall, Doctor, that you submitted some figures as to the actual cost of maintenance. You submitted two forms, one the price for maintenance of patients, and the other for the cost of administration. Secretary Arias finally agreed that it might be left with the Secretary of War to increase that sum, wanting everything excluded, however, excepting the actual cost of maintenance. The matter is now pending in Washington before the Secretary of War, and when he comes back there will probably be a readjustment of the arrangement of the 30-cent figure.

The CHAIRMAN. Then this is not a permanent agreement?

Mr. ROGERS. It is not. The modus vivendi authorized the Secretary to fix that rate, and he fixed it at 30 cents. The Secretary of State of Panama, Mr. Arias, has consented that he fix it at any figure he thinks right, but he has made certain suggestions to exclude certain items of expense and increase some. The Secretary of War did not want to increase it too much.

Colonel GORGAS. Colonel Cooke has handed me the agreement.

Mr. MADDEN. What does it say? We would like to have it in the record.

The CHAIRMAN. Just read the portion relating to this matter.

Mr. BURLISON. Whom is that agreement signed by?

The CHAIRMAN. It is a modus vivendi.

Colonel GORGAS. Take the lepers. It is a fair-enough agreement. It does not cost us anything. Suppose we had no Panamanian lepers; suppose we had six lepers over there; it would cost us just as much

for personnel and everything. The additional five lepers would cost just their feed. It was a sanitary measure. They had to be gotten rid of. We could not trust them to do it. It would not cost us anything to take care of their lepers.

Mr. MADDEN. What were those other 500 in the hospitals?

Colonel GORGAS. They came in for various reasons, and were of various classes. Some of them were our own people that came in from the Zone.

The CHAIRMAN. This is what Mr. Madden means: Of the 500 non-employees that you had in the hospital in the month of August, do you estimate 30 cents as covering the cost of their being there on the same basis as you have just explained, that the additional number of lepers costs the Government no more than 30 cents a day? It is because we have a hospital there and the attendants, and 500 more in the hospital did not materially add to the cost, so far as administration is concerned, but only so far as the actual maintenance of the individuals is concerned?

Colonel GORGAS. I did not give that as the only reason for taking them in. I gave that as one of the reasons. We did it for general sanitary reasons. The reason for taking a sick person into quarantine is a sanitary reason. It would not make any difference what it costs. Evidently you were under the impression, when I used the words "our people," that I meant employees. A good many of those 500 people came from the Zone. They are not employees, but they came from these municipalities. For part of them the municipalities pay us, and for part not.

The CHAIRMAN. Does the Panamanian Government maintain a hospital in Panama and Colon?

Colonel GORGAS. It has a hospital of 130 beds at Panama. We pay some of the salaries there, which amount to \$10,000 or \$12,000 a year.

Mr. MADDEN. What is the total cost of maintenance of that hospital at Panama that you pay \$10,000 or \$12,000 for?

Colonel GORGAS. It has about 130 beds.

Mr. MADDEN. What I want to know is what the total cost of maintenance is.

Colonel GORGAS. I could give you the figures by referring to the papers.

Mr. BURLESON. When you come to revise your remarks you can put them in accurately.

Colonel GORGAS. I suppose it would be more than a tenth of the cost of the hospital.

Mr. BURLESON. Who made that arrangement?

Colonel GORGAS. That was made subsequently by the Governor of the Zone.

Mr. MADDEN. Do I understand you to say that the \$12,000 that the Zone government contributes —

Colonel GORGAS. That the Commission contributes —

Mr. MADDEN. Yes, is only one-tenth of the total cost of maintenance?

Colonel GORGAS. Yes. I can give you the figures on that. It is a guess.

Mr. MADDEN. And there are 130 beds in the hospital. That would make it possible to take care of 130 patients?

Colonel GORGAS. There are more than 130 beds. They average 130 patients.

Mr. MADDEN. That would make it cost \$1,000 a patient per year. Would that be a fair cost, do you think?

Colonel GORGAS. No. I think a patient there would not cost more than \$1.50 a day.

Mr. MADDEN. If you had 130 patients there at \$1.50 a day —

Colonel GORGAS. That would be approximately \$200, gold.

Mr. MADDEN. That would be \$500.

Colonel GORGAS. Yes; \$500 a year.

Mr. MADDEN. So that, as a matter of fact, if it costs \$1,000 a year to maintain each patient in that hospital it is a very excessive charge, is it not?

Colonel GORGAS. No, sir; that is moderate. \$1.50 a day is very small.

Mr. MADDEN. Then how do you maintain them at 30 cents a day?

Colonel GORGAS. That is just the food. Of course it varies in the various hospitals, up and down.

Mr. MADDEN. When the 500 Panamanians come in the hospital down here, you give them beds, as well as food and attendance and medicine. You give them more than food, and do it for 30 cents a day?

Colonel GORGAS. Yes.

Colonel GOETHALS. The 500 patients that the doctor spoke of as indigent patients are not necessarily Panamanians.

Mr. BURLESON. They may be Jamaican negroes.

Colonel GORGAS. If they were Jamaican negroes, Panama would be responsible for them.

Mr. MADDEN. Are there any residents of the Zone who are not employed by the Canal?

Colonel GORGAS. Yes.

Colonel GOETHALS. Discharged employees on the Zone, when sick, are taken to the hospital.

The CHAIRMAN. How much did we contribute toward the erection of this hospital in Panama?

Colonel GORGAS. About \$60,000. That was for fixing up the hospital, repairing and equipment, and everything.

The CHAIRMAN. How much did the Panamanian Government contribute?

Colonel GORGAS. About \$40,000.

Mr. BURLESON. It is the Santo Tomas Hospital?

Colonel GORGAS. Yes; we are talking about the Santo Tomas Hospital.

The CHAIRMAN. That was done by the representatives of our Government in consequence of the provision of the treaty which gives us the power to exercise sanitary control over the city of Panama, is it?

Colonel GORGAS. Yes. Of course the immediate arrangement we considered to be economical. You know we had already been taking all the sick. Santo Tomas had been in a bad state of repair, and the patients had been poorly taken care of, and they had been constantly coming to Ancon, at 30 cents a day; and a great many charity cases. Our idea was that if we could start them on their own hook at Santo Tomas, after a while they would become a first-rate hospital and

become self-supporting. That was the underlying motive. We are now under a much smaller expense than originally. We got rid of 100 patients that we formerly took care of.

The CHAIRMAN. Now, why is it, Colonel, that the actual cost of each patient or nonemployee, and one who is able to pay his own charge in our hospital at Ancon and at other hospitals where they are taken—I do not mean the cost of administration and maintenance of the hospital, but I mean such cost as the care, nursing and medical attendance—is so much more than 30 cents a day?

Colonel GORGAS. I have given a wrong impression if the idea is that all these patients cost only 30 cents a day. The idea is that those patients, paid for by the authorities, by the Panamanian Government and the Zone government—patients that are more or less charity—pay 30 cents a day. There is a considerable number of that 500, probably 100 of them, who will pay \$4 a day in a private room. If they get a nurse for themselves they pay \$7 a day, and so on up. We have had men here who require three nurses, who pay from \$9 to \$15 a day, and, if a surgical operation is rendered necessary, they might pay for that \$600 or \$700 besides. But when I spoke of 30 cents a day I spoke of those who are sent to us by the authorities of the Panamanian Government and the Zone.

The CHAIRMAN. An indigent patient, when taken into the Ancon Hospital from Panama, is paid for by whom?

Colonel GORGAS. They are not taken at the Ancon Hospital. They are provided for at Santo Tomas. Formerly when we did take them, the municipality of Panama paid us 30 cents a day.

The CHAIRMAN. So that during the month of August, when you had your largest number in the hospitals, there were only about 1,200 employees of the Government?

Mr. GARDNER. What was the hospital you mentioned last, where you took the indigent patients?

Colonel GORGAS. Santo Tomas.

Mr. GARDNER. Do I understand you put them in another hospital and get 30 cents a day?

Colonel GORGAS. No; it is when they come into our hospitals, like those at Colon and Ancon. We get the insane from any part of the Republic. If the Secretary of State sends us an insane person, they pay us 30 cents a day for that person so long as he is in the Ancon Hospital.

PATIENTS IN HOSPITALS ELSEWHERE IN THE ZONE.

The CHAIRMAN. In the month of August, when you had the maximum number in the hospital, what numbers were in Ancon Hospital and in the Colon Hospital? How many were there in the intermediate hospitals? Deducting those at Colon and Ancon, you will get the intermediate ones.

Colonel GORGAS. At that time we had these hospitals more or less full along the line. Ancon was not then as large as it is now.

The CHAIRMAN. Have you recently enlarged it?

Colonel GORGAS. Yes, sir. Buildings then constructing have recently been completed. I can tell you by our last report how we stood. I can get that from the records readily.

The CHAIRMAN. For the purposes of the examination could you approximate the number at Ancon and at Colon?

Colonel GORGAS. A thousand of those twelve hundred were in those institutions.

The CHAIRMAN. So that about 200 would be left in the institutions between Ancon and Colon?

Colonel GORGAS. About 300.

The CHAIRMAN. Excluding the Ancon and Colon Hospitals, you have how many hospitals between those two points?

Colonel GORGAS. About 28.

The CHAIRMAN. So that you had about 300 patients in the 28 hospitals?

Colonel GORGAS. Yes; that means every building in which the sick are treated.

The CHAIRMAN. Don't you think, for purposes of economical management, that by consolidating your hospitals into, say, four, you would be able to give the patients all the care and attention and treatment required, and meet all the emergency cases, and still very greatly reduce the cost of maintenance and also the cost of administration?

Colonel GORGAS. You see, we practically have done that, and have concentrated them. The two hospitals of any consequence are at Colon and Ancon. You will see from that statement that the very cheapest places are these small receiving hospitals. Our patients cost us much less per capita there than anywhere else. The idea was this, that we could take one or two hospitals like Ancon and Colon and equip them in first-class condition in every way—I mean so that a patient there would get good care, and anything could be taken care of there, under men of experience, medical men who commanded high salaries, and an equipment of X-rays and everything necessary for treatment. As to these little buildings, on the other hand, I think the word "hospital" conveys a wrong idea.

The CHAIRMAN. But at each one of these little buildings you have an organization, because you are treating patients there?

Colonel GORGAS. We shelter and treat them there for the night. As a matter of fact, in what we call the sick camp there is one negro attendant in charge who looks after the sick men's comfort until some time in the following day, until he can be gotten down to the hospital. The men are not kept there more than 24 hours.

Colonel GOETHALS. That statement is not literally or strictly true with respect to the hospital at Culebra and Empire. There were some there in July and August. They were provided to take care of these patients there.

The CHAIRMAN. How many patients in the month of August did you have in Culebra?

Colonel GORGAS. About 50.

Mr. KEIFER. I want to know if you are not working somewhat on the same system as you had in the Army. You may have a division hospital, and a brigade hospital, and regimental hospitals, where they pass through, if they need to pass through, on to the division hospital. Many of those who go to the regimental hospital never get any further and are treated there temporarily?

Colonel GORGAS. Very much.

Mr. KEIFER. It would be bad policy to take them all at once to the main hospital, and they are expensive, too?

Colonel GORGAS. Oh, yes.

Mr. KEIFER. It would fill that up, not only with the true sick, but also those only temporarily sick, and so on?

Colonel GORGAS. Yes.

Mr. KEIFER. Your policy, as I understand, is with these 28 so-called hospitals to pass them through if they need to go through, or if not, to discharge them?

Colonel GORGAS. Yes. I think you are obliged to have some place to shelter your sick at all these collections of barracks. How do you think you would manage if you had a man in a camp away off from the line like Juan Grande, where a man gets sick in the afternoon, and gets a bad chill, and has to lie up in his barracks? When he gets sick there he goes to the attendant in charge of the building where these cots are. The attendant puts him to bed and goes to the mess house and gets his meals, if he wants anything to eat, and looks after him until the dispensary doctor calls next morning and decides whether he is to go back to work or must go to the hospital. You must have some sort of place like that everywhere.

Mr. BURLESON. You say you have but little organization in such places as those?

Colonel GORGAS. Yes.

Mr. BURLESON. Suppose you take it at Empire, for example, where you have three physicians and three attendants and one clerk, one nurse, a dispenser of quinine, and one dispenser for the sick camp.

Colonel GORGAS. That is one of the larger establishments for taking care of more. That was what was there last August.

Mr. BURLESON. The point of the chairman was, why could you not concentrate this hospital force at the two ends of the line and transport the sick from the middle points to either terminus?

Colonel GORGAS. That is the object of the plan.

Mr. BURLESON. But you are estimating for all these people. For instance, at Paraiso there are two physicians, one clerk, one nurse, a dispenser of quinine, a dispenser at the white camp, and a dispenser at the colored camp, and two attendants; and one at Cucuracha sick camp. That is on page 23. How far is Paraiso from Culebra?

Colonel GORGAS. About 2 miles, I imagine.

Mr. BURLESON. You have two physicians there. You have five physicians at Culebra.

Colonel GORGAS. I will discuss either one you want to.

Mr. BURLESON. I want you to discuss both. They are within 2 miles of each other?

Colonel GORGAS. Yes. Which do you want to take up first?

The CHAIRMAN. Why could not Paraiso be abandoned, and treat the patients at Culebra, which is only 2 miles away?

Colonel GORGAS. The hospital at Culebra is 2 miles from the depot. It has about six patients now in it.

Colonel GOETHALS. You would have to carry the patients entirely across the cut to get to Culebra. Empire and Culebra are a mile apart. You might take that for a sample.

The CHAIRMAN. Is Empire on the same side as Culebra?

Colonel GOETHALS. Yes.

Colonel GORGAS. Now, take the Empire Hospital. Of course, as far as the hospital itself is concerned, it has twenty beds in it. When it was full of patients only one of those physicians had anything to do with it.

Mr. BURLESON. But you are estimating for many more than that.

Colonel GORGAS. They are outside of that. There are three or four of these collections of barracks. There are several sick camps and one or two dispensaries in that district. In the Empire district there are about 3,000 employees, and some three or four hundred women and children, Americans, the wives and children of our white employees.

Mr. BURLESON. The railroad runs through Empire, and it is only a mile to Culebra. If a person is sick, could he not be transported to Culebra?

Colonel GORGAS. You mean the depot at Culebra?

Mr. BURLESON. Yes.

Colonel GORGAS. It could be done, but carrying a man on a stretcher would be expensive.

Mr. BURLESON. That supposes a man had his leg blown off with dynamite. But suppose he had malaria. You could put him on a mule and send him there.

Mr. MANN. It would not be necessary, perhaps, to send him farther.

Colonel GORGAS. To-day there is not a single man at Empire, probably, after the train passes.

Mr. BURLESON. How many men had you at Empire?

Colonel GORGAS. In August, 20 or 25.

Mr. BURLESON. Don't you think that is a pretty vigorous force for an average of twenty patients? Don't you think that is a pretty vigorous force—three physicians?

Colonel GORGAS. Only one physician was taking care of the twenty men. The others were doing other duties. They make a weekly inspection of all the messes and make a report of that. It would be hard to tell all the detailed duties performed by these physicians, but it would take more than one man's time to look after the details of quarters and families. You know the inspections cover messes and houses.

Mr. BURLESON. Is this force concentrated at Empire in one building? Turn to page 23. You have it before you. Is that force that you have estimated for concentrated in one building?

Colonel GORGAS. No.

Mr. BURLESON. What is the necessity for a druggist and a dispenser of quinine—a druggist at \$720, and a dispenser of quinine at \$720?

Colonel GORGAS. We send those men out with the quinine to all the camps.

Colonel GOETHALS. You saw that, Mr. Chairman, over at Gatun.

The CHAIRMAN. They carry it around and make them drink it.

Mr. KEIFER. You do not mean to give the idea, Colonel Gorgas, that Mr. Burleson speaks of, that it is the organization for the hospital at all, except it is incidentally used in that way. Are not those the people that take charge of the sick and make visits, including those hospitals?

Colonel GORGAS. It should read, "for the sick of the station at Empire." We use the expression "hospital department." It is more for a health department.

Mr. BURLESON. You say they can be concentrated, Doctor?

Colonel GORGAS. I think so.

Mr. BURLESON. You say you are thinking of abolishing some of the hospital force in scattered localities and concentrating it at Culebra?

Colonel GORGAS. You are using it in one sense and I in another. I used it in the sense of a force attached generally around Empire. You understood it as the force absolutely in the actual hospital, as in the case at Ancon.

Mr. TAYLOR. From what I understand you, Doctor, you say this term "hospital" is an improper term?

Colonel GORGAS. Not an improper term, but you are understanding it in a different sense from what is intended.

Mr. TAYLOR. If you speak of Ancon Hospital in one item and this at Empire, would you not be using them in the proper sense?

Colonel GORGAS. Ancon Hospital is used in the sense Mr. Burleson is using it. Empire is a district, and this looks after the health of the people of that entire district.

Mr. TAYLOR. That is what I say. How could anybody tell from the nomenclature the difference between them?

Colonel GORGAS. They could not, unless they knew.

Mr. TAYLOR. I want to get from you, if I can, answers to just two questions: How many real hospitals, such as Ancon, are there on the Isthmus?

Colonel GORGAS. We have Ancon and Colon. They are really the two hospitals.

Mr. TAYLOR. And none other?

Col. GORGAS. You saw the convalescent hospital at Taboga, but that is not a hospital in the sense that Ancon is. Then we have a leper colony. It is a hospital, but not in the sense as Ancon. Those are about the only two.

Mr. TAYLOR. The other two are dispensary buildings, and there are local physicians at those places who have a variety of duties to perform entirely distinct from the duties of a doctor in charge of a regular hospital?

Colonel GORGAS. Yes; there are two other hospitals where at present we treat patients on account of the conditions. Paraiso and Gatun each has from six to ten patients. They are so far away from the railroad, however, that we do not frequently take a sick patient from the hospital car.

Mr. BURLESON. In what year did you come to the Zone?

Colonel GORGAS. In 1904.

Mr. BURLESON. When was it that you succeeded in stamping out the yellow fever?

Colonel GORGAS. The last case occurred in May, 1906.

Mr. BURLESON. When you come to revise your remarks, Colonel, I want you to put into the record the number of physicians on the Zone in 1904, the number in 1905, and the number in 1906 when you wiped out the yellow fever, and the number of physicians on the Zone in 1907, together with the number in 1908, and the number that you have now estimated for.

The CHAIRMAN. You can send that by mail. You say your policy of hospital management followed along the line of organization of hospitals in the Army—the brigade, the division, and regimental hospitals. Don't you think it would be better if your organization would follow the line that is usually followed in work similar to the

work that we are doing here, such as railroad work and construction, rather than the policy that is pursued in the Army?

Colonel GORGAS. I did not understand General Keifer's question or remark in that sense. I merely meant that that was the organization—that we treat our sick in the two hospitals, Ancon and Colon, and it was just until a man was determined to be sick and could be gotten to his place that he was taken care of in these receiving establishments.

The CHAIRMAN. Now, in the construction of a railroad, where there are large numbers of men employed, or in the operation of a railroad, if a man is taken sick or injured, he is taken by train to the nearest hospital, and it almost invariably happens that it is farther away from the hospital than any of the men working on the Canal are from these terminal hospitals, and you have A No. 1 railroad service here, so that if a man was taken sick at Gatun, or was injured, he could be taken to the Colon Hospital in a very few minutes. Why, then, is it necessary to maintain a hospital at Gatun?

Colonel GORGAS. Of course the hospital building at Gatun is some distance from the railroad—I suppose a mile from the present railroad depot, close to where the new depot will be when the new Panama Railroad gets through there; but the hospital train goes only once a day.

The CHAIRMAN. For that matter, if the case were serious, you could run a man into Colon on a special.

Colonel GORGAS. Of course. Many of the men live along the line, where they have their families and—

The CHAIRMAN. Suppose you had a doctor on the line located in one of the houses that the Government furnishes, could not that doctor determine very soon whether it would be necessary to give the man medical attendance or necessary to send him to the hospital; and if so, why would it not be better to clothe him with the authority to send him to the hospital than to treat him right there, only a few miles away?

Colonel GORGAS. If a doctor in one of the various camps sees a man at 12 o'clock in his bunk sick with fever, unless you send a special for the sick man he would have to remain there until the next day.

The CHAIRMAN. You could send him on a passenger train. There are two trains each way.

Colonel GOETHALS. Three south and four north.

The CHAIRMAN. Is that in addition to the hospital and supply train?

Colonel GOETHALS. The supply train is a distribution train. The hospital train consists of two hospital cars attached to one of the passenger trains.

The CHAIRMAN. I am not a sanitary officer or a physician, but from the practical, common sense, business standpoint it seems to me you could accomplish everything that is now accomplished by these hospitals if you could locate physicians at these places and make each of them responsible for looking after the health of the community, or, if a large community, let two physicians cover it, and if a man was found to be not well or liable to become sick, or was in fact sick, that doctor could send him right to the main hospital, provided it was of sufficient size to accommodate him; and for that purpose it occurred to me—and that was the reason I started this inquiry—to as-

certain why it would not be better to locate four general hospitals, one at each end and two in the interior, and then locate in these different communities your physicians, who could determine whether a man was able to work or not and should go to the hospital, and if the latter, send him in. Of course, if the railroad company would refuse to haul the patient except on a hospital train, that would be a different proposition. But you could put a man on a stretcher and put him in a box car, if need be, for that matter.

Mr. KEIFER. I would like to ask Colonel Gorgas whether or not one out of four treated in these local hospitals ever gets to the main hospital at all, or ever ought to go?

Colonel GORGAS. The bulk of them come to the dispensaries.

Mr. KEIFER. And ought not to be sent to the general hospital?

Colonel GORGAS. No.

The CHAIRMAN. Cases of that kind could be treated exactly where they are.

Colonel GORGAS. That is what is done at present. I do not think it is necessary to have the four hospitals. I think two are sufficient. At Empire, for instance, within the last two or three days there have been no patients. At Culebra, yesterday, there were no patients. The organization belonging to the hospital proper, of course, will be transferred from time to time, and as the patients decrease they will either be dropped or transferred from one to another.

PANAMANIAN PATIENTS TREATED IN SANTO TOMAS HOSPITAL.

Mr. MADDEN. A little while ago we were on the question of a hospital under the control of the Panamanian Government in Panama, and I think the doctor stated that we contributed one-tenth of the amount required to maintain the hospital. That one-tenth amounts to approximately \$1,000 per patient. That would mean that the total cost is \$120,000. I understood you to say, Doctor, that we cared for patients in the hospitals under your charge at 30 cents a patient.

Colonel GORGAS. Where they are paid for by the Panamanian Government?

Mr. MADDEN. No matter how they are paid for.

Colonel GORGAS. We have some charity patients, and then some charge patients who pay as high as \$25 to \$30 a day.

Mr. MADDEN. One hundred and thirty patients was the maximum number that could be taken care of at this hospital?

Colonel GORGAS. Oh, no. They have about 400 beds. I was trying to give you an idea of the present number of patients.

Mr. MADDEN. We understood you to say 130 beds.

Mr. MANN. We understood that at first. He said 130 patients.

Mr. MADDEN. That would be \$109.50 a piece. I am trying to compare what I think you are doing with what I think is a business proposition. You are contributing \$12,000 to this hospital, and you say we take care of these patients in our own hospitals at 30 cents a day. It would cost only \$14,000, or \$109.50 a patient, assuming that 30 cents a day is the cost. If it is not the cost, that is another proposition.

Mr. GILLET. He did not make that agreement.

Mr. MADDEN. I do not care who made the agreement. I want to get it in the record.

Colonel GORGAS. The cost is about \$1.50 in our hospitals. I mean, take the total expenses of our hospitals and divide the amount by the total number of patients and the cost would be found to be \$1.50 a day.

Mr. GILLET. It seems from this statement that it would be \$1.98. I am talking about Ancon.

Colonel GORGAS. He is speaking of Santo Tomas.

Mr. MADDEN. You say 30 cents a day for each patient?

Colonel GORGAS. Certain patients come from the Panamanian Government at 30 cents a day.

Mr. MADDEN. That is \$109.50 a year?

Colonel GORGAS. Yes.

Mr. MADDEN. We are contributing to the Panamanian Government \$12,000 as part of the cost of maintaining the patients in the hospital under the control of the Panamanian Government in Panama, and if our proportion of the cost is 10 per cent, as you said it was, we are contributing to maintain patients at the rate of \$923.08 a year, whereas we are taking care of their patients at \$109.50 a year.

Colonel GORGAS. I do not get the drift of your question.

Mr. MADDEN. I am taking your own figures, Doctor.

Colonel GORGAS. You mean the money we pay at Santo Tomas now would make those patients cost more than the patients we receive in our own hospitals?

Mr. MADDEN. No; it would cost just the same as if you took care of all their patients.

Colonel GORGAS. We did at one time, you know. They paid 30 cents a day.

Mr. BURLERSON. The arrangement was made in order to be freed from the expense of taking care of all of them. They pay a lump sum under this agreement made with Secretary Taft, with which he had nothing to do.

Mr. MADDEN. That sum is equivalent to the cost of maintaining the patients in our own hospitals?

Colonel GORGAS. As I understand your meaning, if we took the whole 130 into our hospitals and charged 30 cents a day?

Mr. MADDEN. In that case it would cost \$14,245.

Colonel GORGAS. One hundred would be \$30 a day.

Mr. MADDEN. Thirty-nine dollars a day would be the whole thing. It is \$14,245 for 130 people. It is all made out.

Colonel GORGAS. That is what they would pay us. They would pay us if we took care of the patients, but we pay them now \$12,000.

Mr. MADDEN. You are maintaining their patients at \$109.50, and you are contributing 10 per cent of the cost of maintaining their patients in their own hospital, which costs \$980. Either somebody is robbing you or you are giving the wrong figures.

Colonel GORGAS. I do not see your point.

Mr. GARDNER. Whatever is the condition, the Doctor is in no way responsible for it.

Mr. MADDEN. Who is?

Mr. GARDNER. The parties who made the arrangement originally.

Mr. MADDEN. At whose recommendation was the agreement entered upon?

Mr. GARDNER. The Secretary of War's.

Mr. MADDEN. Who recommended it to the Secretary of War?

Colonel GORGAS. I recommended it to the Secretary of War.

The CHAIRMAN. In addition to the physicians employed along the line of the Canal at those places, are there any other physicians in the general practice?

Colonel GORGAS. There are a good many in Panama, not any along the line; a few irregular practitioners; and a few at Colon; one American in good standing at Colon. The bulk of those practicing at Panama are Panamanians. There are a few Jamaica negro practitioners along the line.

Mr. MADDEN. Is there any increase in the population from births?

Colonel GORGAS. We have no means of telling, Mr. Madden.

Mr. MADDEN. Don't you have your physicians make a report?

Colonel GORGAS. We attend only a very few, only our own people. No report is made either in Panama or on the Zone of the native population.

Mr. MADDEN. Of the Zone, I mean.

Colonel GORGAS. No, sir.

MEDICAL ORGANIZATION.

The CHAIRMAN. How much of this organization that you now have is maintained for the purpose of meeting emergencies, and epidemics, and things of that kind?

Colonel GORGAS. I do not know that I could say; none in the sense that I understand you. We would be prepared to expand. For instance, if we had an epidemic we would be in position practically to enlarge our organization or produce the equivalent of an enlarged force. We have a tent hospital packed away, beyond our present capacity, and in the event of an epidemic we would call on the Chairman to provide for these labor camps.

The CHAIRMAN. I understand the maximum number of cases last August was several hundred below your maximum capacity. Suppose you had a sufficient capacity to accommodate 2,100; would you have to have an organization, and do you aim to maintain an organization that would take care of that number of patients at one time or under any circumstances?

Colonel GORGAS. We would keep the present force of physicians, not letting them take their leaves in the three months when the sickness is highest.

The CHAIRMAN. What I mean is this: If you are maintaining an organization here of sufficient size to take care of the maximum under abnormal conditions, and Congress should see fit to appropriate only enough to take care of the sick under normal conditions and make an appropriation payable contingent upon the breaking out of an epidemic, or an unusually large number of patients here, to be expended under the direction of the President of the United States, would not that meet your requirements and result in greater economy in the organization all the time for the purpose of taking care of the Canal Zone under normal circumstances?

Colonel GORGAS. We have an organization for taking care of the people of the Zone under normal circumstances. We could take care of less than 4 per cent of the employees—I mean we have an organization for taking care of only 4 per cent of the employees in case they were sick. That is our normal rate. We do not go below that.

The CHAIRMAN. Do you maintain an organization here at all times of sufficient size to take care of 2,100 sick?

Colonel GORGAS. No. As the sickness is lowest in the winter months, we cut down the corps of orderlies and attendants and those in the immediate wards. Take the trained nurses, for instance. A certain number resign all the time. That is the backbone of our organization. We will not get in the new nurses all the winter until next spring.

The CHAIRMAN. How many resigned last winter? Do you know?

Colonel GORGAS. It would be a guess. Of course the record will show that. About ten, I should say.

The CHAIRMAN. How many do you anticipate will resign this winter?

Colonel GORGAS. I suppose about the same number.

The CHAIRMAN. You estimate, however, for this force throughout the whole year?

Colonel GORGAS. Yes. The nurses we would keep, and we would let the organization run down as vacancies occur, and not let anyone leave in the high months of August and September. The nurses and doctors are not given leave during those months.

The CHAIRMAN. How does the rate of compensation paid to the nurses here compare with the rate of compensation they receive in hospitals in the States?

Colonel GORGAS. Ours is very good pay. Of course, it is a little hard to compare the compensation here and in the States. Take any hospital of any size in the United States that has, as we have, trained nurses, and besides those the bulk of their force is composed of the student nurses, the probationers, who go there to learn. The bulk of the nurse force in the New York hospitals, the Bellevue, for instance, is made up of them. They get \$5 or \$6 a month. The superiors who train them get \$50 a month. Our nurses are divided into two classes here; half get \$60 a month and half get \$75.

Mr. TAYLOR. You say that in the Regular Army you provide for 5 per cent sick?

Colonel GORGAS. Last year it actually was 5 per cent. It averages throughout the year 5 per cent.

Mr. TAYLOR. Is your medical organization based upon normal conditions of 5 per cent?

Colonel GORGAS. Yes; that would be the normal.

Mr. TAYLOR. You say the normal condition of your force here is based upon 4 per cent?

Colonel GORGAS. That would be our maximum when we have the largest force in the year. Now it is 2.6 per cent. It would run down to 2 per cent.

Mr. TAYLOR. I mean your medical force, your doctors and surgeons and physicians.

Colonel GORGAS. Yes; at the normal rate of 4 per cent.

Mr. TAYLOR. It is less than it is in the Regular Army—your force is less than the population of the Regular Army?

Colonel GORGAS. Yes. In our Regular Army we have 60,000 men, with 400 physicians. We have practically 60,000 men here, with 100 physicians. We have about one-fourth of those in the Regular Army.

Mr. GILLETT. What do you mean by 60,000 men?

Mr. TAYLOR. That is 60,000 men on the roll of the Army. You say with an Army of 60,000 men you have 400 physicians?

Colonel GORGAS. About that.

Mr. TAYLOR. How do you account for the 60,000 men you say you have here? What do you provide for?

Colonel GORGAS. We have 40,000 employees. Of course, we have transient patients besides these 40,000 employees; between 400 and 500 sick from all other classes of population. I think that would be equivalent to 20,000 more men than we calculate it on the basis of an Army.

Mr. TAYLOR. What do you claim is the population that you have to take charge of in a medical and sanitary way?

Colonel GORGAS. One hundred and ten thousand.

Mr. TAYLOR. State how you make that up.

Colonel GORGAS. This report will give it here [indicating]. That is furnished in answer to one of the questions you asked.

Colonel Gorgas submitted the following:

Please furnish sanitary reports and mortality reports under the different years of the French régime; also the sanitary and mortality reports of this year on the basis of the report printed on page 23 of the President's special message.

ISTHMIAN CANAL COMMISSION,
DEPARTMENT OF SANITATION,
Ancon, Canal Zone, November 9, 1907.

MEMORANDUM FOR THE APPROPRIATION COMMITTEE.

Referring to your memorandum asking for sanitary and mortality reports under the different years of the French régime, also the sanitary and mortality reports of this year on the basis of the report printed on page No. 23 of the President's special message, I wish to invite your attention to the attached printed pamphlet which was published some time ago by this Department, and gives such statistics as we were able to glean from the old French records.

I also furnish you a similar report to the one made for the President's special message last year, covering the months of January to October, 1907, inclusive. The statistics as gathered from the French records relate principally to the deaths that occurred in Ancon Hospital.

The French had no means of ascertaining the deaths that occurred among their employees along the line. Their work was done entirely by contract, and they charged the contractor \$1 a day for every sick man treated in their hospitals. The tendency was, therefore, on the part of the contractor not to send their sick to the hospitals, and when they died in their homes along the Canal the French authorities had no more means of ascertaining this result than a similar company working in New York City would have of knowing what became of their employees. Mr. Buena-Varilla, in writing to me on this subject, called my attention to this fact.

The present British Minister, Mr. Mallet, also gives me much the same information, and it is a matter of pretty general knowledge among the people here during the French construction. The French commenced work in 1881 and failed in 1888. The years, then, from 1881 to 1888, inclusive, are those years in which they brought in any considerable force, but I do not consider the French records of any value whatever as a means of measuring their actual mortality. They simply show what was their minimum mortality and how much greater than their minimum mortality their actual mortality was is entirely an estimate on anybody's part.

Very respectfully, yours,

W. C. GORGAS,
Chief Sanitary Officer.

GENERAL STATISTICS.

Table showing population, number of employees, deaths, and death rate.

[The population and deaths of the cities of Panama and Colon, and for the Canal Zone, include employees and civil population.]

	Popu- lation.	Deaths during month.	Annual average per 1,000 for the month.
JANUARY, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	8,303	9	13.01
Black employees of the Isthmian Canal Commission and Panama Railroad.....	23,548	59	30.06
Total employees of the Isthmian Canal Commission and Panama Railroad.....	31,851	68	25.62
Panama.....	30,489	105	41.38
Colon.....	13,596	53	46.78
Canal Zone.....	45,089	108	27.41
Total population (Panama, Colon, and Canal Zone).....	89,174	261	35.12
FEBRUARY, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	8,504	10	14.11
Black employees of the Isthmian Canal Commission and Panama Railroad.....	27,800	83	35.88
Total employees of the Isthmian Canal Commission and Panama Railroad.....	36,304	93	30.74
Panama.....	31,063	82	31.68
Colon.....	13,852	51	44.18
Canal Zone.....	47,579	145	36.57
Total population (Panama, Colon, and Canal Zone).....	92,494	278	36.07
MARCH, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	9,173	12	15.69
Black employees of the Isthmian Canal Commission and Panama Railroad.....	27,214	110	48.60
Total employees of the Isthmian Canal Commission and Panama Railroad.....	36,387	122	40.23
Panama.....	31,569	62	23.56
Colon.....	14,078	38	32.39
Canal Zone.....	49,774	167	37.85
Total population (Panama, Colon, and Canal Zone).....	95,421	257	32.32
APRIL, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	10,170	9	10.61
Black employees of the Isthmian Canal Commission and Panama Railroad.....	27,995	114	48.66
Total employees of the Isthmian Canal Commission and Panama Railroad.....	38,165	123	38.67
Panama.....	31,983	81	30.39
Colon.....	14,263	53	44.59
Canal Zone.....	51,569	200	46.53
Total population (Panama, Colon, and Canal Zone).....	97,815	334	40.97
MAY, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	10,466	16	18.34
Black employees of the Isthmian Canal Commission and Panama Railroad.....	28,537	82	34.48
Total employees of the Isthmian Canal Commission and Panama Railroad.....	39,003	98	30.15

334 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Table showing population, number of employees, deaths, and death rate—Con.

	Popula- tion.	Deaths during month.	Annual average per 1,000 for the month.
MAY, 1907—Continued.			
Panama.....	33,584	75	26.79
Colon.....	14,378	41	34.21
Canal Zone.....	51,988	147	33.98
Total population (Panama, Colon, and Canal Zone).....	99,950	263	31.57
JUNE, 1907.			
White employees of the Isthmian Canal Commission and the Panama Railroad.....	10,828	19	21.06
Black employees of the Isthmian Canal Commission and Panama Railroad.....	28,831	72	29.96
Total employees of the Isthmian Canal Commission and Panama Railroad.....	39,659	91	27.53
Panama.....	33,854	104	36.86
Colon.....	14,495	41	33.94
Canal Zone.....	53,148	138	31.15
Total population (Panama, Colon, and Canal Zone).....	101,497	283	33.45
JULY, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	10,684	15	16.84
Black employees of the Isthmian Canal Commission and Panama Railroad.....	27,614	98	42.58
Total employees of the Isthmian Canal Commission and Panama Railroad.....	38,298	113	35.43
Panama.....	34,176	145	50.91
Colon.....	14,632	53	43.46
Canal Zone.....	54,525	159	34.99
Total population (Panama, Colon, and Canal Zone).....	103,333	357	41.46
AUGUST, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	11,733	17	17.38
Black employees of the Isthmian Canal Commission and Panama Railroad.....	28,710	76	31.76
Total employees of the Isthmian Canal Commission and Panama Railroad.....	40,443	93	27.59
Panama.....	34,631	89	30.84
Colon.....	14,827	46	37.23
Canal Zone.....	56,473	163	34.63
Total population (Panama, Colon, and Canal Zone).....	105,931	298	33.75
SEPTEMBER, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	11,662	25	25.72
Black employees of the Isthmian Canal Commission and Panama Railroad.....	29,400	73	29.79
Total employees of the Isthmian Canal Commission and Panama Railroad.....	41,062	98	28.63
Panama.....	34,994	104	35.66
Colon.....	14,983	55	44.04
Canal Zone.....	58,229	138	28.43
Total population (Panama, Colon, and Canal Zone).....	108,206	297	32.93
OCTOBER, 1907.			
White employees of the Isthmian Canal Commission and Panama Railroad.....	11,963	18	18.03
Black employees of the Isthmian Canal Commission and Panama Railroad.....	29,150	71	29.22
Total employees of the Isthmian Canal Commission and Panama Railroad.....	41,113	89	25.97

Table showing population, number of employees, deaths, and death rate—Con.

	Popula- tion.	Deaths during month.	Annual average per 1,000 for the month.
OCTOBER, 1907—Continued.			
Panama.....	35,321	91	30.91
Colon.....	15,124	51	42.84
Canal Zone.....	59,630	133	26.76
Total population (Panama, Colon, and Canal Zone).....	110,075	278	30.30

Average number of white employees a month.....	10,548
Average number of deaths of white employees a month.....	15
Annual death rate of white employees per thousand.....	17.08
Average number of black employees a month.....	27,879
Average number of deaths of black employees a month.....	83
Annual death rate of black employees per thousand.....	33.10
Average number of all employees a month.....	38,223
Average number of deaths of all employees a month.....	98
Annual death rate of all employees per thousand.....	31.05

Population and deaths from various diseases in the city of Panama, by months and years, from November, 1883, to August, 1906.

Mortality statistics.											
Popu- lation.	Year and month.	Yellow fever.	Beri- beri.	Tuber- culosis.	Ma- laria.	Ty- phoid.	Small- pox.	Dysen- tery.	Other dis- eases.	Total.	Annual death rate per 1,000 for the month.
19,827	1883.										
	Nov.....	3		10	18	2		8	38	79	42.77
	Dec.....	5		2	17	4	3	13	80	124	75.04
20,062	1884.										
	Jan.....	8		10	25	2		12	74	131	78.60
	Feb.....	5		5	38	2		12	74	136	81.60
	Mar.....	3		7	26	2		15	75	128	76.80
	Apr.....			12	16	4	1	6	62	101	60.60
	May.....	1		5	17	1		11	65	100	60.00
	June.....	2		7	19	3		20	74	125	75.00
	July.....	11		6	23	7		14	108	169	101.40
	Aug.....	6		3	64	4		17	104	198	118.80
	Sept.....	7		9	68	4	1	16	96	201	120.60
	Oct.....	8		9	49	2		23	131	222	133.20
	Nov.....	4		13	73	2		19	145	256	153.60
20,276	Dec.....	13		10	73	3		14	131	244	146.40
	1885.										
	Jan.....	17		12	68			12	111	220	132.00
	Feb.....	3		9	16	1		5	84	118	70.80
	Mar.....	8		21	26	1		10	100	166	99.60
	Apr.....	6		6	20	1		17	73	123	73.80
	May.....	28		3	32	2		17	60	142	85.20
	June.....	38		5	98	5		23	29	198	118.80
	July.....	21		2	60	1		17	74	175	105.00
	Aug.....	11		13	107			14	88	233	139.80
	Sept.....	17		14	82	3		13	123	252	151.20
	Oct.....	8		17	76			9	100	210	126.00
20,501	Nov.....	8		11	60	3		8	117	207	124.20
	Dec.....	9		11	42			5	117	184	110.40
	1886.										
	Jan.....	22		6	30			16	75	149	87.22
	Feb.....	27		5	47	1		13	81	174	101.85
	Mar.....	42		8	48	1		11	76	186	108.87
	Apr.....	39		12	30			11	118	210	122.92
	May.....	44		6	33	3		9	53	148	85.65
	June.....	31		14	36	2		9	88	180	105.36
	July.....	23		11	56	1		17	83	191	107.41
	Aug.....	14		19	45	1		4	95	178	104.19
	Sept.....	10		7	44	2		7	86	156	91.31
	Oct.....	7		11	41	3		9	119	190	111.21
	Nov.....	11		13	34	4	6	9	111	188	110.04
	Dec.....	11		15	53	2	14	8	105	208	121.76

336 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Population and deaths from various diseases in the city of Panama, by months and years, from November, 1888, to August, 1906—Continued.

Pop-ulation.	Year and month.	Mortality statistics.								Total.	Annual death rate per 1,000 for the month.
		Yellow fever.	Beri-beri.	Tuber-culosis.	Ma-laria.	Ty-phoid.	Small-pox.	Dysen-tery.	Other dis-eases.		
20,726	1887.										
	Jan.	17		8	36	2	11	7	96	177	102.58
	Feb.	17		4	29	5	15	10	86	166	96.18
	Mar.	15		6	33	1	27	3	88	173	100.29
	Apr.	12		7	24	1	28	8	82	162	93.91
	May	27		14	35	7	35	11	127	256	148.40
	June	40		18	42		14	18	70	202	117.10
	July	51		9	38	1	11	15	162	287	166.37
	Aug.	21		18	71	2	12	13	126	263	152.46
	Sept.	13		11	41	5	13	6	100	189	109.56
	Oct.	19		12	48		8	6	131	224	129.85
	Nov.	19		12	42	2	14	6	128	223	129.27
	Dec.	8	16	5	42		6	6	112	195	112.04
20,962	1888.										
	Jan.	7	10	16	30	1	4	9	110	187	106.85
	Feb.	5	6	9	35		5	3	83	146	83.42
	Mar.	1	3	13	35	1	9	4	58	124	70.85
	Apr.	4	3	5	24	2	1	9	68	116	66.28
	May	7		4	20	1	7	13	66	118	67.42
	June	12		16	40	1	3	11	78	161	92.95
	July	10		15	41	1	6	6	76	155	88.57
	Aug.	9	2	12	25	5	1	8	80	142	81.14
	Sept.	7	4	8	49	2		1	85	156	89.14
	Oct.	7		5	32	3		6	115	168	96.00
	Nov.	7	12	9	63	2	3	8	100	204	116.57
	Dec.	6	5	16	54	2	1	9	123	216	123.42
21,177	1889.										
	Jan.	4	3	15	47			15	105	189	108.00
	Feb.	9	3	7	19			8	66	112	64.00
	Mar.	4	4	10	24			8	45	95	54.28
	Apr.	7	2	8	17	2		6	51	93	53.14
	May	7		14	26			3	78	128	73.14
	June	1		3	17			8	41	70	40.00
	July		1	14	23			7	47	92	52.57
	Aug.	1		7	20			2	47	77	44.00
	Sept.		1	16	10			2	48	77	44.00
	Oct.		1	10	18			5	59	93	53.14
	Nov.		2	6	13			2	41	64	36.38
	Dec.		1	16	15	3		5	56	96	54.86
21,403	1890.										
	Jan.		4	9	20	2		3	58	96	53.83
	Feb.		1	14	14			1	61	91	51.02
	Mar.			6	16				52	78	42.61
	Apr.		1	8	10	2		2	36	57	31.91
	May			5	14			4	43	66	37.00
	June		1	12	11			6	43	73	40.93
	July			7	26			6	37	76	42.61
	Aug.			9	22	2		7	41	81	45.42
	Sept.		1	14	23	1		1	40	80	44.86
	Oct.		1	11	18			1	45	76	42.61
	Nov.			8	12			1	35	56	31.40
	Dec.		2	14	12	3	1	3	40	75	42.06
21,628	1891.										
	Jan.		1	8	14	1	2	3	52	81	45.00
	Feb.		1	5	16	1	2	3	38	66	36.66
	Mar.			11	14		3	4	44	76	42.22
	Apr.		1	11	19	1		3	45	79	43.88
	May		1	15	12		2	1	41	72	40.00
	June	8	1	9	25		1	4	43	91	50.53
	July	1		6	17			3	47	76	42.24
	Aug.	5		18	10	1		4	45	81	45.02
	Sept.	3	1	14	18			5	46	87	48.20
	Oct.		1	5	9	1		1	51	67	31.47
	Nov.			10	17	3		4	51	86	47.77
	Dec.		3	9	7			2	47	68	37.77

Population and deaths from various diseases in the city of Panama, by months and years, from November, 1883, to August, 1906—Continued.

Pop- ulation.	Year and month.	Mortality statistics.									Annual death rate per 1,000 for the month.
		Yellow fever.	Beri- beri.	Tuber- culosis.	Ma- laria.	Ty- phoid.	Small- pox.	Dysen- tery.	Other dis- eases.	Total.	
21,853	1892.										
	Jan.....		1	12	26	1		3	45	88	48.44
	Feb.....		1	9	8			4	40	62	34.12
	Mar.....			10	12			3	35	60	33.19
	Apr.....			7	12			1	40	60	33.19
	May.....	1		14	6			4	36	61	38.58
	June.....			8	7			2	53	70	38.51
	July.....			12	16			6	45	79	43.48
	Aug.....			14	14			4	41	73	40.18
	Sept.....			12	11			3	46	72	39.63
	Oct.....			11	7			3	52	73	40.18
	Nov.....			11	6			4	41	61	33.58
	Dec.....			18	9			4	55	86	47.23
22,079	1893.										
	Jan.....	1		10	8			1	42	62	33.81
	Feb.....			13	10	1		4	50	78	42.54
	Mar.....			7	9	1		2	38	57	31.09
	Apr.....			12	18			5	43	78	42.54
	May.....			8	10			1	30	49	26.72
	June.....			14	9			4	47	74	40.40
	July.....			9	10			2	33	54	29.45
	Aug.....			10	14			7	51	82	44.72
	Sept.....			16	18			6	60	100	54.54
	Oct.....			20	14		1	6	49	90	49.09
	Nov.....			7	10		1	4	68	90	49.09
	Dec.....		1	14	12			4	58	89	48.54
22,304	1894.										
	Jan.....			4	8	2		3	48	65	34.97
	Feb.....			10	5	1	1	5	28	50	26.36
	Mar.....			12	6	1		3	48	70	37.61
	Apr.....			6	11			4	39	60	33.28
	May.....			16	9				44	69	37.13
	June.....			14	16			8	39	77	41.43
	July.....			19	17			5	49	90	48.47
	Aug.....			16	21			2	50	89	47.89
	Sept.....			8	14			1	40	63	33.90
	Oct.....			18	12				46	78	40.89
	Nov.....		1	9	6			3	31	50	26.36
	Dec.....			8	12			6	48	74	39.82
22,828	1895.										
	Jan.....			14	12	1			40	67	35.73
	Feb.....			13	7				31	51	27.20
	Mar.....		1	10	8			2	31	54	28.80
	Apr.....			13	8		2	2	42	65	34.66
	May.....			12	6			1	70	89	47.46
	June.....			17	15			5	40	77	41.06
	July.....			13	15			1	63	92	49.06
	Aug.....			6	10			4	32	52	27.73
	Sept.....			14	15			1	42	72	38.40
	Oct.....			9	9			9	59	86	45.86
	Nov.....			8	16			3	45	72	38.40
	Dec.....			12	17			7	54	90	48.00
22,762	1896.										
	Jan.....		1	12	15		2	10	50	90	47.57
	Feb.....			16	19	1		4	53	93	49.16
	Mar.....			17	7	1		6	39	70	37.00
	Apr.....			12	16			5	46	79	41.82
	May.....			15	13	1		6	61	96	50.74
	June.....			15	15		1	8	46	85	44.93
	July.....			16	20			6	41	83	43.87
	Aug.....			11	10			4	42	67	35.41
	Sept.....			16	13			3	49	81	42.81
	Oct.....		2	10	6	1			53	72	38.06
	Nov.....		5	15	22			2	43	87	45.98
	Dec.....		1	13	12			4	46	76	40.17

Population and deaths from various diseases in the city of Panama, by months and years, from November, 1888, to August, 1906—Continued.

Pop- ula- tion.	Year and month.	Mortality statistics.								Total.	Annual death rate per 1,000 for the month.
		Yellow fever.	Beri- beri.	Tuber- culosis.	Ma- lar- ia.	Ty- phoid.	Small- pox.	Dysen- tery.	Other dis- eases.		
22,977	1897.										
	Jan.		3	12	19	1		7	52	94	49.04
	Feb.		2	10	8			2	53	75	39.13
	Mar.		1	12	13			8	53	87	45.39
	Apr.	9	3	14	11				45	83	43.30
	May.	11	7	11	30		1	11	56	127	66.26
	June.	15	3	15	15	2		6	52	108	56.84
	July.	8	4	7	35			4	49	107	55.82
	Aug.	1	1	14	24			4	49	93	44.17
	Sept.	1	4	15	10			5	49	84	43.82
	Oct.		1	10	11			1	46	66	36.00
	Nov.		1	10	12			4	48	75	39.13
	Dec.		1	15	15	1		3	69	104	54.26
23,201	1898.										
	Jan.			16	14	1		3	59	93	48.10
	Feb.		1	11	12				43	67	34.65
	Mar.			7	12	1			32	52	27.32
	Apr.			17	15			1	28	61	32.53
	May.			11	14			2	48	75	38.79
	June.		1	12	10	1		6	44	74	38.28
	July.		1	13	17			5	57	93	48.10
	Aug.		1	7	25			2	47	82	42.42
	Sept.		1	12	11				57	81	41.90
	Oct.		3	11	10			2	58	84	43.44
	Nov.		5	15	8			2	67	97	50.17
	Dec.		4	10	13	1		6	58	92	47.57
23,425	1899.										
	Jan.		1	18	22	1		3	43	88	49.41
	Feb.		2	11	15			3	46	77	39.48
	Mar.		1	7	6			1	32	47	24.10
	Apr.		1	13	11			2	38	65	33.33
	May.	4	1	16	11	1		2	30	65	33.33
	June.	20	2	18	13			1	54	108	55.38
	July.	22	1	13	21		1	2	65	125	64.10
	Aug.	17		18	16			3	57	111	56.92
	Sept.	12	2	11	21			9	57	112	57.43
	Oct.	1	3	11	26	1		4	66	112	57.43
	Nov.	2	8	15	16			2	47	90	46.15
	Dec.	9	9	9	12	1		2	69	111	56.92
23,650	1900.										
	Jan.	5	7	18	13	1		1	71	116	59.00
	Feb.	3	3	16	7			3	57	89	45.25
	Mar.	5	6	13	8	2		4	46	84	42.71
	Apr.	12	1	11	10			5	43	82	41.27
	May.	10	5	13	18			3	55	104	52.88
	June.	11	4	22	19	1		2	55	114	57.95
	July.	25	2	18	18			9	131	203	103.22
	Aug.	29	8	18	28			11	87	181	92.02
	Sept.	5	5	20	12			2	50	94	47.79
	Oct.		10	13	16	3		2	52	96	48.81
	Nov.	2	3	10	13	1		2	39	70	35.59
	Dec.	2	10	10	16		1	6	44	89	45.25
23,874	1901.										
	Jan.	2	2	9	9			4	56	82	41.34
	Feb.	1		3	7	1		4	32	48	24.20
	Mar.		2	6	11	1		2	41	64	32.26
	Apr.	1	1	3	9		5	4	49	72	36.30
	May.			10	2		4	5	50	73	36.90
	June.			15	12	1	3	4	60	95	47.89
	July.	1	1	11	8			12	68	108	54.45
	Aug.			12	11			15	79	123	62.01
	Sept.		5	15	22	1	19	3	61	126	63.63
	Oct.		7	15	15		18	1	59	115	57.98
	Nov.		5	19	12		26	2	85	140	75.12
	Dec.		10	14	16		21	7	86	154	77.64

Population and deaths from various diseases in the city of Panama, by months and years, from November, 1883, to August, 1906—Continued.

Pop-ulation.	Year and month.	Mortality statistics.									Annual death rate per 1,000 for the month.
		Yellow fever.	Beri-beri.	Tuber-culosis.	Ma-laria.	Ty-phoid.	Small pox.	Dysen-tery.	Other dis-eases.	Total.	
24,060	1902.										
	Jan.....		2	8	15		41	8	64	138	66.00
	Feb.....		2	17	15		45	3	45	127	63.80
	Mar.....		1	13	19		46	7	80	136	68.00
	Apr.....	4	5	12	10		20	13	62	126	63.00
	May.....	2	2	16	13	1	18	24	87	133	66.60
	June.....	15	3	20	76		3	44	71	232	116.00
	July.....	38	1	18	88		4	50	83	282	141.00
	Aug.....	36	5	34	55		5	43	24	202	101.00
	Sept.....	14	3	28	58			36	76	215	107.60
	Oct.....	41	18	19	110	1		26	91	303	151.60
	Nov.....	32	11	23	56			11	107	240	120.00
	Dec.....	20	9	14	47		1	17	139	247	123.60
24,323	1903.										
	Jan.....	12	3	23	25		1	11	126	201	90.25
	Feb.....	7	2	16	15			11	69	124	61.23
	Mar.....	5	5	16	15			10	67	118	58.27
	Apr.....	1	2	10	14		1	2	32	62	30.61
	May.....	3	3	17	10		1	9	51	94	46.44
	June.....	3		18	17		3	6	51	88	48.30
	July.....	5	4	17	13			4	64	107	52.83
	Aug.....	11	4	15	14			7	66	117	57.77
	Sept.....	3	9	16	8		1	2	60	90	48.88
	Oct.....	1	22	14	16		1	3	68	125	61.72
	Nov.....		15	21	18		1	2	67	124	61.23
	Dec.....		3	9	13			4	65	94	46.44
24,548	1904.										
	Jan.....	4	4	10	16			6	52	92	45.06
	Feb.....		4	18	16			1	56	95	46.63
	Mar.....		4	10	16			4	59	93	45.55
	Apr.....		5	11	10			6	30	62	30.86
	May.....	1	2	4	15			7	64	93	45.55
	June.....	1	4	12	14		1	6	70	108	52.99
	July.....	1	5	10	12		1	9	62	99	48.44
	Aug.....		2	19	7			2	72	102	49.95
	Sept.....	1	3	13	8				80	105	51.42
	Oct.....		9	10	17			1	83	120	58.73
	Nov.....		12	10	15			2	80	119	58.20
	Dec.....		17	10	16		1	6	95	145	71.02
24,784	1905.										
	Jan.....	3	10	18	19			5	71	126	60.96
	Feb.....	6	4	19	11			4	61	105	50.80
	Mar.....	4	7	7	3			4	58	83	40.16
	Apr.....	2	4	4	20			3	59	92	44.51
	May.....	1	6	6	4			3	86	108	51.29
	June.....	6	6	6	7			6	91	122	59.03
	July.....	2	11	6	11			7	95	132	63.87
	Aug.....	2	5	8	10	2		8	106	144	69.67
	Sept.....	2	12	10	3			7	102	136	66.80
	Oct.....		22	17	15	1		3	70	128	61.93
	Nov.....	1	30	19	27			6	75	148	71.61
	Dec.....		19	8	18	2		4	80	131	63.38
-----	1906.										
	Jan.....		4	10	10			2	60	86	39.60
	Feb.....		2	11	12	1		1	51	78	36.00
	Mar.....		5	10	13	1		2	59	90	41.53
	Apr.....		2	3	15	1		1	42	64	29.53
	May.....		2	17	7	1		7	80	114	52.61
	June.....		4	14	11			4	54	87	40.16
	July.....		2	17	27	1		9	55	111	51.23
	Aug.....		5	21	14	1		9	72	122	56.30

RECAPITULATION OF MORTALITY STATISTICS.

Month.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.
January.....		131	220	149	177	187	189	96	81	88	62	65
February.....		136	118	176	166	146	112	91	66	62	78	60
March.....		128	166	188	173	124	96	76	76	60	57	70
April.....		101	123	210	162	116	93	57	79	60	78	60
May.....		100	142	148	256	118	128	66	72	61	49	69
June.....		125	198	180	202	161	70	73	91	70	74	77
July.....		169	175	191	287	155	92	76	76	79	54	90
August.....		198	243	178	268	142	77	81	81	73	82	89
September.....		201	252	156	189	156	77	80	87	72	100	63
October.....		222	210	190	224	188	93	76	67	73	90	76
November.....	79	256	207	188	223	204	64	56	86	61	90	50
December.....	124	244	184	208	196	216	96	75	68	86	89	74
Total.....	203	2,011	2,228	2,160	2,522	1,893	1,186	903	930	845	903	833

Month.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.
January.....	67	90	94	93	88	116	82	138	201	92	126	86
February.....	51	93	75	67	77	89	48	127	124	95	106	78
March.....	54	70	87	52	47	84	64	136	118	93	83	90
April.....	65	79	83	61	65	82	72	126	62	62	92	64
May.....	89	96	127	75	65	104	73	133	94	93	106	114
June.....	77	85	108	74	108	114	95	232	96	108	122	87
July.....	92	83	107	93	125	203	108	282	107	99	132	111
August.....	52	67	93	82	111	181	123	202	117	102	144	122
September.....	72	81	84	81	112	94	126	216	99	106	136	.....
October.....	86	72	69	84	112	96	116	303	125	120	128	.....
November.....	72	87	75	97	90	70	149	240	124	119	148	.....
December.....	90	76	104	92	111	89	154	247	94	145	181	.....
Total.....	867	979	1,106	951	1,111	1,322	1,209	2,381	1,363	1,233	1,553	.....

Number of employees and deaths from various diseases among employees of the French canal companies, by months and years, from January, 1881, to April, 1904.

Year and month.	Employees.						Mortality statistics.												
	Offi- cials.		Office employ- ees.		Laborers.		Total em- ploy- ees.	Yellow fever.	Beriberi.	Tuberculo- sis.	Pneumonia.	Malaria.	Typhoid.	Smallpox.	Dysentery.	Other diseases.	Cause of death not stated.	Total deaths.	Annual death rate per 1,000 for the month.
	White.	Colored.	White.	Colored.	White.	Colored.													
1881.																			
January.....	19						19												
February.....	41		28		65	352	486											1	1
March.....	59		32		63	411	565											2	2
April.....	74		38		92	413	617											1	1
May.....	81		42		111	678	912											1	1
June.....	92		54		129	764	1,039	1										2	2
July.....	101		61		138	801	1,101	3				4						1	1
August.....	117		66	3	144	906	1,236	2				2						5	5
September.....	121		69	3	160	956	1,309					3						2	2
October.....	131		78	3	190	977	1,379	1		1		4						1	1
November.....	144		84	3	218	986	1,435	3										6	6
December.....	153		87	4	234	1,037	1,515	1				6						3	11
1882.																			
January.....	158		91	4	285	999	1,537				1							4	1
February.....	163		94	4	272	1,096	1,629	1				8						7	6
March.....	167		94	4	276	1,099	1,640	3										1	10
April.....	176	1	98	5	288	1,079	1,647	1					1					4	3
May.....	182	1	98	7	286	1,119	1,693	3		1		1						2	7
June.....	188	1	102	8	287	1,127	1,713	3				1						3	1
																		9	9
																		7	7
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
																		9	9
															</				

Number of employees and deaths from various diseases among employees of the French canal companies, by months and years, from January, 1881, to April, 1904—Continued.

Year and month.	Employees.						Mortality statistics.												
	Offi- cials.		Office employ- ees.		Laborers.		Total em- ploy- ees.	Yellow fever.	Berberi.	Tuberculo- sis.	Pneumonia.	Malaria.	Typhoid.	Smallpox.	Dysentery.	Other diseases.	Cause of death not stated.	Total deaths.	Annual death rate per 1,000 for the month.
	White.	Colored.	White.	Colored.	White.	Colored.													
July.....	210	1	104	8	291	1,223	1,837	6	1	10	8	1	1	1	2	2	21	137.18	
August.....	217	2	112	10	286	1,218	1,845	9	1	6	5	1	1	1	1	1	18	117.07	
September.....	223	2	118	12	297	1,227	1,879	5	1	5	5	1	1	1	1	1	11	70.25	
October.....	229	2	130	12	354	1,355	2,092	3	1	1	1	1	1	1	1	1	7	40.15	
November.....	254	2	141	14	363	1,883	2,627	3	1	3	3	1	1	1	1	1	9	41.11	
December.....	275	2	149	17	337	3,036	3,838	3	1	4	4	1	1	1	1	1	7	21.88	
1883.																			
January.....	275	2	162	25	388	3,590	4,432	2	2	5	5	2	2	2	2	2	24	64.98	
February.....	283	2	187	54	539	4,779	5,844	2	2	2	2	2	2	2	2	2	17	34.90	
March.....	293	2	216	71	544	4,845	5,971	2	1	1	7	2	2	2	2	2	19	58.18	
April.....	299	2	224	74	477	5,076	6,152	2	2	2	3	2	2	2	1	8	1	17	83.15
May.....	307	1	233	82	464	4,714	5,801	2	2	2	2	2	2	2	2	2	25	51.71	
June.....	315	1	251	93	640	4,876	6,176	2	2	2	2	2	2	2	2	2	24	46.63	
1883.																			
July.....	325	2	259	105	637	5,061	6,389	3	1	3	11	2	2	2	2	2	29	54.46	
August.....	331	3	267	127	651	5,609	6,988	3	1	2	5	1	1	1	4	5	1	21	36.06
September.....	339	3	268	131	770	6,245	7,716	4	1	4	11	8	2	2	5	5	3	50	77.76
October.....	348	3	284	138	906	6,532	8,211	3	1	6	6	11	1	1	7	7	2	40	71.61
November.....	355	3	290	143	1,094	7,305	9,360	5	1	3	21	17	1	1	6	14	5	72	62.80
December.....	363	3	309	152	1,112	8,313	10,252	4	1	16	25	8	1	1	7	12	4	70	88.96
1884.																			
January.....	399	3	341	162	1,290	9,947	12,121	3	2	7	17	9	10	11	2	2	61	60.89	
February.....	390	3	365	183	1,347	11,534	13,828	9	1	11	36	6	7	7	7	7	92	79.83	
March.....	408	2	414	219	1,390	13,733	16,172	8	1	4	20	20	4	4	4	4	94	69.75	
April.....	443	2	432	226	1,405	15,142	17,650	6	1	12	15	3	3	3	3	3	63	42.83	
May.....	441	3	437	231	1,476	15,331	17,919	3	1	5	9	5	5	5	5	5	45	30.13	
June.....	447	2	439	225	1,490	15,827	18,439	6	3	5	19	2	2	2	2	2	64	41.65	
July.....	464	3	456	229	1,521	16,001	18,674	8	2	7	29	10	5	5	5	5	68	56.54	
August.....	467	3	482	258	1,570	19,090	18,876	3	1	8	51	7	7	7	7	7	117	74.38	
September.....	489	2	507	275	1,639	15,339	18,647	8	2	7	19	40	7	7	9	53	5	139	89.45
October.....	531	4	524	284	1,651	16,249	19,243	21	10	16	51	1	1	1	12	43	7	161	100.40
November.....	562	4	583	281	1,600	15,906	18,936	20	2	19	56	7	7	7	11	42	5	162	102.06
December.....	556	3	577	296	1,503	15,802	18,727	33	3	15	35	9	2	2	2	46	3	146	93.66
1885.																			
January.....	561	3	579	283	1,372	14,953	17,751	22	4	18	25	2	2	2	4	29	104	70.80	
February.....	555	3	561	278	1,300	14,543	17,246	9	1	11	16	1	1	1	1	23	60	41.74	
March.....	561	4	560	280	1,234	14,126	16,755	9	1	4	13	1	1	1	5	20	1	66	47.26
April.....	537	4	564	275	1,265	13,637	16,282	2	1	10	13	1	1	1	4	21	52	38.32	
May.....	543	4	551	267	1,108	13,620	15,793	19	4	3	12	5	1	1	1	16	60	46.88	
June.....	531	3	543	248	1,122	12,701	15,148	31	4	6	23	3	3	3	8	19	2	96	76.04
July.....	539	4	537	244	1,060	12,778	15,171	33	3	4	30	3	3	3	11	24	1	109	86.21
August.....	541	4	536	244	1,144	12,628	15,097	19	3	8	38	3	3	3	7	23	3	101	80.28
September.....	540	3	539	251	1,016	12,520	14,875	24	2	14	48	3	3	3	14	35	6	145	156.97
October.....	545	3	541	251	1,170	12,658	15,168	11	2	11	35	1	1	1	9	34	1	104	82.27
November.....	539	2	543	252	1,091	12,590	15,023	11	1	16	46	3	3	3	10	24	1	109	87.06
December.....	542	2	545	251	1,148	12,616	15,104	0	3	13	26	3	3	3	4	30	2	90	71.50
1886.																			
January.....	553	2	552	254	1,236	12,715	15,315	11	1	8	23	1	1	1	5	20	2	71	55.68
February.....	553	4	545	261	1,287	12,682	15,332	15	2	6	21	1	1	1	8	22	1	75	58.70
March.....	551	4	547	261	1,314	12,810	15,487	23	1	5	32	1	1	1	6	30	1	98	75.93
April.....	542	4	547	263	1,274	12,487	15,118	25	3	14	28	2	2	2	7	12	1	91	72.23
May.....	535	4	544	262	1,213	12,072	14,630	32	1	5	9	3	2	2	2	15	67	54.95	
June.....	532	4	540	262	1,145	11,944	14,429	44	1	4	9	2	2	2	4	26	90	74.84	
July.....	533	3	546	261	1,184	12,084	14,611	42	5	10	13	2	2	2	6	19	1	98	80.48
August.....	537	3	544	265	1,257	12,311	14,917	34	2	10	17	3	3	3	4	17	1	108	70.79
September.....	541	4	545	272	1,286	13,032	15,683	32	6	7	13	2	2	2	1	16	1	78	59.68
October.....	543	4	548	272	1,327	13,284	15,978	10	3	6	13	4	4	4	3	20	1	61	48.81
November.....	547	4	546	269	1,265	12,700	15,331	22	6	5	12	1	1	1	5	19	1	74	57.92
December.....	551	5	548	270	1,264	12,821	15,489	18	3	8	11	3	3	3	6	10	10	64	49.58

342 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Number of employees and deaths from various diseases among employees of the French canal companies, by months and years, from January, 1881, to April, 1904—Continued.

Year and month.	Employees.						Mortality statistics.													
	Officials.		Office employees.		Laborers.		Total employees.	Yellow fever.	Beriberi.	Tuberculosis.	Pneumonia.	Malaria.	Typhoid.	Smallpox.	Dysentery.	Other diseases.	Cause of death not stated.	Total deaths.	Annual death rate per 1,000 for the month.	
	White.	Colored.	White.	Colored.	White.	Colored.														
1887.																				
January.....	552	5	546	271	1,362	12,908	15,644	19	...	2	11	24	...	5	5	16	1	83	63.66	
February.....	554	5	547	271	1,428	13,063	15,868	17	...	3	5	8	...	2	7	3	7	1	53	40.08
March.....	551	5	549	275	1,450	13,374	16,204	15	...	2	9	10	...	4	11	5	5	1	62	45.91
April.....	553	4	551	274	1,447	13,711	16,540	12	...	3	13	7	...	2	11	2	13	...	63	45.70
May.....	549	4	556	277	1,512	13,972	16,870	28	...	5	10	11	3	22	6	19	...	104	73.97	
June.....	543	5	556	282	1,500	14,326	17,212	29	...	7	9	19	3	8	11	14	1	101	70.41	
July.....	544	5	558	286	1,534	14,621	17,548	25	7	4	13	24	6	6	9	12	...	106	72.48	
August.....	547	5	558	289	1,596	14,890	17,886	18	13	5	7	31	3	7	11	13	...	108	72.46	
September.....	545	4	556	285	1,563	14,613	17,506	16	12	2	11	12	...	6	6	8	...	73	49.86	
October.....	548	4	557	284	1,525	14,437	17,355	14	29	1	10	27	1	8	9	3	...	102	70.32	
November.....	550	4	557	284	1,417	14,332	17,144	12	32	7	11	14	...	1	12	4	6	...	99	60.29
December.....	548	3	553	281	1,396	13,860	16,641	11	30	2	9	15	...	5	4	3	...	79	56.96	
1888.																				
January.....	546	3	549	278	1,352	13,331	16,059	12	13	1	7	14	...	1	4	9	...	61	45.58	
February.....	543	3	545	274	1,296	12,990	15,651	12	10	9	8	10	...	1	5	3	11	...	68	52.13
March.....	539	2	534	263	1,227	12,588	15,153	11	11	2	6	11	...	1	5	4	5	...	56	44.34
April.....	541	2	534	265	1,269	12,686	15,297	7	11	3	12	7	...	1	3	2	13	...	59	46.28
May.....	537	2	532	258	1,187	12,479	14,995	6	5	5	5	3	...	1	1	6	...	35	28.08	
June.....	538	2	532	256	1,211	12,530	15,069	11	7	4	10	8	...	1	9	9	...	59	46.90	
July.....	535	2	528	249	1,242	12,169	14,726	8	3	2	6	6	...	2	3	2	10	...	42	34.22
August.....	536	2	521	217	1,189	11,906	14,371	9	2	6	6	8	...	3	3	4	...	41	34.23	
September.....	541	2	517	209	1,167	11,727	14,163	7	3	5	4	3	...	1	2	15	...	40	33.89	
October.....	523	2	469	186	1,013	9,955	12,148	8	2	6	7	7	...	2	4	17	...	53	52.35	
November.....	519	2	348	127	931	9,044	10,971	6	1	5	2	13	...	5	5	12	...	49	53.69	
December.....	513	2	317	105	967	7,413	9,317	5	1	3	4	8	...	6	1	14	...	42	54.09	
1889.																				
January.....	468	1	237	83	692	4,844	6,325	4	1	4	...	8	3	...	3	13	...	36	68.30	
February.....	386	1	157	59	534	2,374	3,511	2	...	...	...	2	1	...	1	5	...	11	37.59
March.....	153	1	31	3	497	1,772	2,457	2	...	3	...	2	...	...	2	5	...	14	68.37
April.....	145	1	27	2	346	1,651	2,172	3	1	1	...	1	...	...	1	4	...	11	60.77
May.....	137	1	27	2	317	835	1,319	1	...	1	...	...	...	...	2	...	...	4	35.39
June.....	131	...	27	1	273	822	1,254	1	...	...	...	...	...	...	...	...	...	1	9.56
July.....	123	...	27	...	259	803	1,212	2	...	1	...	...	...	...	...	...	...	3	29.70
August.....	117	...	27	...	245	781	1,170	...	...	...	1	...	...	...	1	...	...	2	20.51
September.....	111	...	25	...	211	635	982	...	...	1	...	1	...	...	2	...	...	4	48.87
October.....	111	...	25	...	211	630	977	...	...	...	...	1	...	...	1	...	...	3	36.84
November.....	110	...	25	...	205	612	952	...	...	...	...	...	...	...	...	...	...	1	12.60
December.....	109	...	24	...	203	594	930	...	...	...	...	...	...	...	...	...	...	1	12.90
1890.																				
January.....	109	...	24	...	206	589	928	...	...	...	...	...	...	...	...	...	...	1	12.93
February.....	106	...	24	...	206	590	929	...	1	...	...	...	...	...	...	...	...	2	25.83
March.....	107	...	23	...	205	587	922	...	...	...	...	1	...	...	...	3	...	3	39.04
April.....	105	...	23	...	208	582	918	...	...	...	...	...	...	...	...	...	...	...	...
May.....	102	...	23	...	208	586	919	...	...	...	...	...	...	...	2	...	...	2	26.11
June.....	97	...	23	...	207	591	918	...	1	...	...	...	...	...	...	...	...	1	13.07
July.....	97	...	23	...	209	582	911	...	...	...	2	...	...	...	1	...	...	3	35.51
August.....	95	...	26	...	209	579	906	...	...	1	...	1	...	...	3	...	...	5	66.22
September.....	95	...	23	...	208	585	910	...	1	...	2	...	...	...	2	...	...	7	92.30
October.....	91	...	22	...	206	585	904	...	1	...	1	...	1	...	1	...	...	3	39.83
November.....	89	...	22	...	206	581	898	...	...	...	...	...	...	...	1	...	...	1	13.36
December.....	89	...	21	...	205	584	896	...	...	...	...	1	...	...	1	...	...	2	26.60
1891.																				
January.....	88	...	20	...	207	584	899	...	...	...	...	...	...	...	1	...	...	2	26.69
February.....	84	...	20	...	207	580	891	...	1	...	...	...	...	...	1	...	...	3	40.40
March.....	81	...	18	...	209	583	888	...	...	...	2	...	...	...	1	...	...	3	40.54
April.....	77	...	18	...	203	582	880	...	...	...	2	...	...	...	1	...	...	3	40.90
May.....	74	...	16	...	205	582	877	...	2	...	...	...	...	...	2	...	...	4	54.73
June.....	70	...	16	...	206	570	862	...	1	...	1	...	...	...	1	...	...	4	55.68
July.....	63	...	14	...	203	569	849	...	1	...	1	...	...	...	1	...	...	2	28.26
August.....	63	...	14	...	203	575	855	...	1	...	...	...	...	...	1	...	...	3	42.10
September.....	62	...	14	...	203	562	841	...	...	...	...	...	...	...	3	...	...	3	42.80
October.....	59	...	14	...	205	558	836	...	2	...	...	...	...	...	4	...	...	6	86.12
November.....	57	...	14	...	201	566	838	...	...	...	1	...	...	...	2	...	...	3	42.95
December.....	54	...	14	...	198	561	827	...	...	...	...	...	...	...	1	...	...	1	14.51

Number of employees and deaths from various diseases among employees of the French canal companies, by months and years, from January, 1881, to April, 1904—Continued.

Year and month.	Employees.						Mortality statistics.													
	Officials.		Office employees.		Laborers.		Total employees.	Yellow fever.	Beriberi.	Tuberculosis.	Pneumonia.	Malaria.	Typhoid.	Smallpox.	Dysentery.	Other diseases.	Cause of death not stated.	Total deaths.	Annual death rate per 1,000 for the month.	
	White.	Colored.	White.	Colored.	White.	Colored.														
1892.																				
January	54		14		198	552	818					1				2		3	44.00	
February	54		14		197	556	821									1		1	14.61	
March	54		14		195	554	817									1		1	14.68	
April	52		14		195	550	811		1									1	14.79	
May	52		14		194	553	813									2		2	29.52	
June	51		14		191	552	808				1				1	1		3	44.55	
July	46		14		187	554	804		1		1				1	1		3	44.77	
August	49		14		187	548	798		1		1				1	1		3	45.11	
September	47		14		184	546	790								1	1		1	15.18	
October	47		14		181	534	776								1	1		1	15.45	
November	47		12		179	518	756									2		2	31.74	
December	47		12		179	509	747								1			1	16.06	
1893.																				
January	47		12		179	508	740				1				1		2	32.17		
February	46		12		179	502	739								1	1	1	16.23		
March	46		12		177	501	736				1				2		3	48.91		
April	43		12		175	501	732													
May	43		11		176	499	729				1				1		2	32.92		
June	41		11		174	496	722													
July	39		11		169	495	714								1	1	2	33.61		
August	27		12		169	504	712		2						2	4	67.41			
September	27		11		165	498	704				1						1	17.04		
October	27		14		165	490	696								1	1	2	34.48		
November	26		14		163	488	691								1	1	1	17.36		
December	26		14		163	484	687								1		1	17.46		
1894.																				
January	25		14		165	484	686								1		1	17.49		
February	25		14		165	479	683								1		1	17.56		
March	25		14		164	478	681			1					1	1	2	35.24		
April	24		14		163	482	683								1	1	2	35.13		
May	24		14		163	478	679								3		3	53.01		
June	24		15		164	502	765										1	15.68		
July	24		15		164	500	769								2		2	31.20		
August	24		17		167	461	699													
September	24		19		166	477	686													
October	24		25		165	475	692								1	1	2	26.90		
November	24		28		167	506	1,025	1									1	11.70		
December	24		33		167	527	1,054				1				1		2	22.83		
1895.																				
January	31		33		171	534	1,060													
February	32		33		179	530	1,101								1		1	10.50		
March	47		33		175	538	1,123													
April	61		33		175	598	1,137								2		2	21.10		
May	67		35		175	580	1,157								5		5	51.85		
June	67		41		177	591	1,176				1						1	10.20		
July	67		55		176	914	1,212								4		4	39.60		
August	66		60		176	939	1,253								2		2	19.15		
September	66		69		182	1,006	1,326				1				1		2	18.09		
October	67	1	71		191	1,033	1,363								1	1	2	17.60		
November	67	1	78	2	190	1,041	1,374		1						1	3	5	43.66		
December	66	1	73	2	192	1,078	1,412		1		2				1	2	6	60.99		
1896.																				
January	65	1	73	2	203	1,324	1,668				1				3		4	28.77		
February	63	1	74	2	227	1,466	1,833								6		6	29.27		
March	63	1	74	2	225	1,681	2,046				1				1		2	11.73		
April	63	1	76	3	231	1,867	2,271				1				3		4	21.13		
May	60	1	77	3	244	2,027	2,412								4		4	19.90		
June	67	1	79	5	256	2,198	2,566		2		2				1	7	12	55.46		
July	67	1	81	5	263	2,420	2,833		1		2				1	4	8	33.88		
August	62	1	81	5	274	2,605	3,018				1				5		6	23.85		
September	62	1	82	6	281	2,737	3,159				2				2	10	14	53.18		
October	49	1	84	8	277	2,965	3,384		1		2				1	6	10	35.46		
November	49	1	84	8	283	3,162	3,587				1				1	3	4	13.38		
December	47	1	87	11	289	3,337	3,772				2				3		5	13.90		

Number of employees and deaths from various diseases among employees of the French canal companies, by months and years, from January, 1881, to April, 1904—Continued.

Year and month.	Employees.						Mortality statistics.												
	Offi- cials.		Office employ- ees.		Laborers.		Total em- ploy- ees.	Yellow fever.	Berber. fever.	Tubercu- losis.	Pneumonia.	Malaria.	Typhoid.	Smallpox.	Dysentery.	Other diseases.	Cause of death not stated.	Total deaths.	Annual death rate per 1,000 for the month.
	White.	Colored.	White.	Colored.	White.	Colored.													
1897.																			
January	45	1	87	11	303	3,648	4,095			1		2			2	4		10	29.30
February	44	1	87	14	307	3,651	4,104					2			2	3		7	20.46
March	43	1	86	13	304	3,640	4,087		2	2					2	2		6	17.61
April	41	1	86	13	302	3,623	4,066					4			4	4		10	29.81
May	41	1	85	12	303	3,611	4,053	32	18	1		4			2	4		31	91.78
June	42	1	82	12	297	3,590	4,024	32	5	2		1	2		3	1		17	50.09
July	42	1	82	12	302	3,499	3,938		2	2		2			3	1		17	21.33
August	43	1	79	14	298	3,473	3,907			4					3	4		12	36.85
September	43	1	79	14	298	3,459	3,894		4	1		2			3	5		12	36.97
October	44	1	79	14	295	3,440	3,873					1			2	2		3	9.29
November	44	1	76	15	295	3,425	3,856		1	1		1			1	3		5	15.56
December	47	1	76	15	297	3,429	3,865					2			2	3		7	21.73
1898.																			
January	46	1	78	15	297	3,450	3,887			2		1				5		8	24.69
February	46	1	78	14	295	3,300	3,734			1		3			1	4		9	28.92
March	48	1	76	14	291	3,244	3,674			2		1				3		9	19.59
April	48	1	76	14	291	3,119	3,549					1				5		6	20.28
May	46	1	76	16	292	3,055	3,486			1		2				6		9	30.98
June	46	1	75	16	289	3,006	3,433			2					1	4		7	24.46
July	46	1	75	15	287	2,943	3,367			1						4		5	17.82
August	46	1	75	14	280	2,889	3,314						2		1	5		8	28.96
September	44	1	74	14	285	2,833	3,251									3		3	11.07
October	38	1	71	14	287	2,718	3,129			1		1				3		5	19.17
November	35	1	68	14	285	2,613	3,016									5		5	19.89
December	32	1	68	14	285	2,513	2,913			2								2	8.23
1899.																			
January	32	1	66	12	276	2,196	2,583			2		1				2		5	23.22
February	29	1	66	12	275	2,211	2,594			1						3		4	18.50
March	29	1	66	12	275	2,077	2,460			1		1				2		4	19.51
April	30	1	64	11	278	2,214	2,598									1		2	9.23
May	30	1	64	11	278	2,211	2,595			3		1				2		6	27.74
June	30	1	64	11	269	2,081	2,456									4		4	19.54
July	31	1	62	9	263	1,954	2,320			1		1				12		14	72.41
August	30	1	62	9	263	2,124	2,489			2						4		6	28.92
September	30	1	62	8	265	2,091	2,457								1	2		3	14.65
October	30	1	62	8	269	2,191	2,561			3					1	1		5	23.42
November	30	1	64	6	267	2,123	2,491									1		1	4.81
December	29	1	64	6	263	2,028	2,391			1						2		3	15.06
1900.																			
January	29	1	68	7	265	2,072	2,042			1						6		7	34.39
February	29	1	68	7	267	1,784	2,156			5						3		8	44.52
March	29	1	68	7	266	1,670	2,041			1		1				1		3	17.63
April	28	1	68	9	267	1,449	1,822									3		3	19.75
May	28	1	68	9	265	1,401	1,772									1		4	27.08
June	28	1	66	9	265	1,377	1,746			2						3		5	34.36
July	26	1	66	8	263	1,415	1,779			3		1	3		2		10	67.45	
August	26	1	67	8	268	1,679	2,049			1						2		3	17.56
September	25	1	67	8	268	1,629	1,998			1						4		5	30.03
October	25	1	67	8	267	1,605	1,973								1	3		4	24.32
November	24	1	67	8	269	1,782	2,131			4		3				5		12	67.57
December	23	1	67	8	267	1,722	2,088			1			1			3		5	28.73
1901.																			
January	22	1	68	8	271	1,737	2,107			1						3		4	22.78
February	22	1	68	10	273	1,625	1,999												
March	22	1	68	10	269	1,655	2,025									4		4	23.70
April	22	1	67	10	269	1,648	2,017									2		2	11.89
May	20	1	67	10	270	1,601	1,969												
June	18	1	65	9	272	1,538	1,903									1		1	6.30
July	18	1	65	9	274	1,639	2,006									3		4	23.92
August	18	1	65	8	274	1,672	2,038			1		1				1		3	17.66
September	18	1	63	8	273	1,644	2,006						2			3		5	29.91
October	18	1	63	8	272	1,607	1,970					1				4		5	30.45
November	19	1	63	8	275	1,579	1,945			1				1		1		3	18.50
December	19	1	62	7	275	1,646	2,010			1						4		5	29.85

Number of employees and deaths from various diseases among employees of the French canal companies, by months and years, from January, 1881, to April, 1904—Continued.

Year and month.	Employees.						Mortality statistics.													
	Offi- cials.		Office employ- ees.		Laborers.		Total em- ploy- ees.	Yellow fever.	Beriberi.	Tubercu- losis.	Pneumonia.	Malaria.	Typhoid.	Smallpox.	Dysentery.	Other diseases.	Cause of death not stated.	Total deaths.	Annual death rate per 1,000 for the month.	
	White.	Colored.	White.	Colored.	White.	Colored.														
1902.																				
January.....	19	1	62	7	271	1,617	1,977			1						4		5	30.34	
February.....	18	1	62	7	273	1,662	2,023									2		2	11.86	
March.....	18	1	61	5	269	1,444	1,708			1		1				2		4	26.69	
April.....	18	1	57	2	267	1,386	1,744			1						1		3	20.64	
May.....	15	1	52	2	267	1,406	1,744									1		1	6.88	
June.....	13	1	49	3	235	988	1,287			1						1		2	18.64	
July.....	13	1	45	3	232	937	1,234			1		1				1		3	29.17	
August.....	13	1	45	3	232	955	1,240													
September.....	13	1	38	2	227	935	1,216					1			1	2		4	39.47	
October.....	13	1	38	2	209	813	1,076					1				2		3	33.45	
November.....	13	1	36	2	201	766	1,019							1		3		4	47.10	
December.....	12	1	36	2	198	781	1,030					1		1				2	23.30	
1903.																				
January.....	12	1	36	2	203	805	1,050			1		2		6		3		12	135.97	
February.....	12	1	34	2	187	750	986							3				3	36.51	
March.....	10	1	34	2	189	759	995							2				2	24.12	
April.....	10	1	34	2	183	758	988								1	6		7	85.02	
May.....	10	1	34	2	183	753	963					1				3		4	49.84	
June.....	10	1	34	2	185	683	915								1			1	13.11	
July.....	10	1	34	2	184	689	920									1		2	26.08	
August.....	10	1	34	2	185	708	940									1		1	12.76	
September.....	10	1	34	2	181	673	901									1		1	13.31	
October.....	10	1	34	2	183	669	892													
November.....	10	1	32	2	182	675	905													
December.....	10	1	32	2	182	586	813													
1904.																				
January.....	10	1	32	2	181	606	832								1			1	14.42	
February.....	10	1	32	2	178	602	825													
March.....	10	1	32	2	179	600	814													
April.....	10	1	32	2	179	593	817								1	1		2	29.37	

RECAPITULATION OF MORTALITY STATISTICS.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
January.....		6	24	61	104	71	83	61	36	1	2	3
February.....		17	17	92	80	75	53	68	11	2	3	1
March.....	1	10	19	94	66	98	62	56	14	3	3	1
April.....	2	3	17	63	82	91	63	80	11		3	1
May.....	1	7	25	45	80	67	104	35	4	2	4	2
June.....	7	9	24	64	96	90	101	80	1	1	4	3
July.....	11	21	29	88	109	68	106	42	3	3	2	3
August.....	4	18	21	117	101	88	108	41	2	5	3	3
September.....	7	11	50	139	145	78	73	40	4	7	3	1
October.....	8	7	49	161	104	61	102	53	3	3	6	1
November.....	6	9	72	162	108	74	99	49	1	1	3	2
December.....	11	7	76	146	90	64	79	42	1	2	1	1
Total.....	58	125	423	1,232	1,096	955	1,033	605	91	30	37	22

RECAPITULATION OF MORTALITY STATISTICS—Continued.

	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
January.....	2	1	.....	4	10	8	5	7	4	5	12	1
February.....	1	1	1	6	7	9	4	8	.....	2	3	.....
March.....	3	2	.....	2	6	4	4	3	4	2	2	.....
April.....	.....	2	2	4	10	6	2	3	2	3	7	2
May.....	2	3	5	4	31	9	6	4	.....	1	4	.....
June.....	1	1	1	12	17	7	4	5	1	2	1	.....
July.....	2	2	.....	8	7	5	14	10	4	3	2	.....
August.....	4	.....	2	6	12	8	6	3	3	.....	1	.....
September.....	1	2	2	14	12	3	3	5	3	4	1	.....
October.....	2	2	2	10	3	5	5	4	3	.....	.....	.....
November.....	1	1	5	4	5	5	1	12	3	4	.....	.....
December.....	1	2	6	5	7	2	3	5	5	2	.....	.....
Total.....	19	17	30	79	127	73	57	69	36	33	33	3

Grand total, 6,283.

Mr. TAYLOR. You claim Panama for one of your locations?

Colonel GORGAS. Yes.

Mr. TAYLOR. What do you estimate that population to be?

Colonel GORGAS. Thirty-five thousand.

Mr. TAYLOR. On what hypothesis do you claim that Panama is within the scope of your sanitary and medical supervision?

Colonel GORGAS. We have sanitary control over it.

Mr. TAYLOR. Absolutely?

Colonel GORGAS. Absolutely.

Mr. TAYLOR. What about your medical control?

Colonel GORGAS. We have very few sick patients there. Colon would be 15,000 population.

Mr. TAYLOR. You place the number of Zone employees at 40,000?

Colonel GORGAS. About 60,000. Of course, the employees are stationed in Panama as well as Colon. If you take the population, you would have to take Panama and Colon and the Zone, irrespective of the employees.

Mr. TAYLOR. You say the Zone population, including all the employees, is about 60,000?

Colonel GORGAS. Both Panama and Colon include a lot of employees who live there.

Mr. TAYLOR. What is the population you claim on the Zone?

Colonel GORGAS. Sixty thousand.

Mr. TAYLOR. Independent of Panama and Colon?

Colonel GORGAS. Yes, sir.

Mr. TAYLOR. That would make 100,000, about?

Colonel GORGAS. One hundred and ten thousand.

Mr. TAYLOR. That is all I wanted.

The CHAIRMAN. Doctor, how does your force to-day compare with the force you had a year ago?

Colonel GORGAS. The total force?

The CHAIRMAN. Yes.

Colonel GORGAS. It would be approximately the same.

The CHAIRMAN. How many physicians have you now on the roll?

Colonel GORGAS. About a hundred.

The CHAIRMAN. How many did you have in 1905?

Colonel GORGAS. That would be two years ago?

The CHAIRMAN. Yes.

Colonel GORGAS. Of course, very many less. It would be so wild a guess that I would rather look at the figures, Mr. Tawney, than to undertake to give them offhand.

The CHAIRMAN. I wish you would make a memorandum and furnish me with a statement of the number of physicians you had in 1905, 1906, and 1907, and also the number of nurses you had in those respective years.

Colonel GORGAS. Yes, sir; I will do so.

The statement referred to, furnished by Colonel Gorgas, is as follows:

Salary per annum.	1905.	1906.	1907.	Salary per annum.	1905.	1906.	1907.
<i>Physicians.</i>				<i>Female nurses.</i>			
\$880.....	1	1	1	\$600.....	38	2	1
\$1,100.....	3	1	2	\$720.....	24	49	60
\$1,300.....	21	32	2	\$800.....	3	34	57
\$1,500.....	1	0	3	\$1,200.....	1	7	6
\$1,625.....	0	0	1	\$1,500.....	1	2	2
\$1,750.....	0	0	1	\$1,800.....	0	1	1
\$1,800.....	9	16	44				
\$2,000.....	0	1	0		67	95	128
\$2,200.....	0	1	2				
\$2,300.....	0	0	1	<i>Male nurses.</i>			
\$2,380.....	1	0	0	\$320.....	1	0	0
\$2,400.....	15	11	23	\$600.....	7	1	0
\$3,000.....	5	13	10	\$720.....	3	10	10
\$3,500.....	0	1	1	\$800.....	1	14	16
\$3,600.....	0	3	6	\$1,200.....	0	1	1
\$3,750.....	0	1	1				
\$4,000.....	1	0	2		12	26	27
\$4,500.....	1	3	1				
\$6,000.....	0	0	2				
	58	84	103				

PERSONNEL OF ADMINISTRATIVE OFFICE.

The CHAIRMAN. How many employees had you in your administrative department?

Colonel GORGAS. If you wish me to include the clerical force and all, I would have to look up my figures.

Mr. BURLESON. I think you will find it on page 63, where you estimated it—no, it is on page 57, where he has estimated the force of his office—3 clerks of class D, 7 clerks of class C, 18 clerks of class B, and so forth.

Colonel GORGAS. You mean for the office itself?

The CHAIRMAN. Yes; just your office.

Colonel GORGAS. We have not that many at present. I have the data here. The clerical force, outside of those for the whole department, I put down at 67. That includes the clerks at the various hospitals out and beyond.

The CHAIRMAN. And also the clerks in your office?

Colonel GORGAS. The whole clerical department, the timekeeping and all.

The CHAIRMAN. You estimate for 29 or 30 clerks in your office for the next fiscal year?

Colonel GORGAS. Yes, sir.

The CHAIRMAN. What is the character of their work, or why are so many clerks required in connection with your Department? What is the character of their work?

Colonel GORGAS. Of course, a third or more of these clerks are in the timekeeping department, who make up the rolls of all the employees of the department. Each department has exactly the same organization.

The CHAIRMAN. What I want to get at is as to the necessity for so large a clerical organization as you have.

Colonel GORGAS. A third of the force does the timekeeping. Then another third of the force is looking after the property accounts.

The CHAIRMAN. Do you mean to say that you have timekeepers who keep the time of the doctors and nurses?

Colonel GORGAS. Yes; everything.

The CHAIRMAN. What is the necessity of having a person keep their time? Is not their presence known to the clerks around there all the time?

Colonel GORGAS. It is part of the routine of the disbursing office. Of course, the Disbursing Officer, when he came to check up and pay on our rolls, would only know by this time book. That is the routine order.

The CHAIRMAN. In a business house where the organization is larger than yours they do not aim to have men who go around and keep the time of employees when they are all under the same roof.

Colonel GORGAS. Of course, I am not sufficiently familiar with the needs of that particular feature. Mr. Williams, the disbursing officer, could explain the necessity of the timekeeping better than I can.

The CHAIRMAN. There is a necessity for timekeeping on the work in the shops where men are liable to "soldier" on you, but when you have a high class of employees, who are getting \$3,000 a year, such as physicians and nurses, who are all under the same roof, I am unable to see the necessity of an organization of that kind.

Mr. KEIFER. I understand, Mr. Chairman, that he keeps these under orders that apply to all the departments.

Colonel GOETHALS. They must turn in at the end of the month a time roll for every employee, but there is no order existing requiring Colonel Gorgas to keep any specific force employed at timekeeping.

The CHAIRMAN. My thought was this, that one clerk could simply make up the pay roll.

Colonel GOETHALS. That is what he does for the monthly employees and the doctors and the nurses; but Colonel Gorgas has a number of men out cutting grass and weeds, and digging ditches, and things of that kind.

The CHAIRMAN. Then we ought to employ them as laborers.

Mr. KEIFER. They are employed as laborers, are they not?

Colonel GORGAS. Yes.

PERSONNEL OF THE SANITARY DEPARTMENT.

Mr. MADDEN. How many men have you under your department?

Colonel GORGAS. About 2,400 at present.

The CHAIRMAN. You estimate for 29 clerks—1 chief clerk at \$2,400; 3 clerks of class D, at \$2,100 each; 7 clerks of class C, at \$1,800 each, and 18 clerks of class B, at \$1,500 each. One-third of those are timekeepers?

Mr. TAYLOR. That would be nine or ten of them.

Colonel GORGAS. It happens that this particular timekeeping force came to us when we were separated from the Canal Zone government. We have reduced our timekeeping force, but they are kept mighty busy. That is a big job to keep the time of 2,400 men such as ours are.

The CHAIRMAN. But none of these 29 clerks are timekeepers.

Colonel GORGAS. About a third of them.

The CHAIRMAN. In your office, I am talking about. Do you understand me?

Colonel GORGAS. Yes, sir. They make up the rolls, the time books from everywhere.

The CHAIRMAN. You say one-third of those are timekeepers, and yet they are not engaged in keeping time, but are out with their scythes and cutting grass, and so on?

Colonel GORGAS. Oh, no; these men never leave the office. The books come in every day.

The CHAIRMAN. Whose time do they keep?

Colonel GORGAS. The time of the whole department.

The CHAIRMAN. How many employees have you outside of laborers at Ancon whose time these nine men keep?

Colonel GORGAS. They keep the time of everybody from Colon to Panama.

The CHAIRMAN. Do they travel?

Colonel GORGAS. No. The time books are sent to them every day.

The CHAIRMAN. They keep the time books, but are not the timekeepers?

Colonel GORGAS. They are spoken of as such on the roll. Every department has a division or department of timekeeping. A third more in the office at Panama are the men who keep the property accounts. All our supplies are placed in the storeroom at Colon. They render a return of that. Wherever we have property—and we have property at every station—the property return has to be rendered for that property to these men every three months. It takes a force of men. I have to rely, in estimating expenses, on the returns that this office force makes. For instance, in a case where the mechanical department does a little piece of work for us and puts in a bill, I must rely on the returns made by this department.

Mr. MADDEN. What is the principal item of expense in your department?

Colonel GORGAS. A fourth of our men are engaged in ditching. That is the greatest item for any one thing. The hospital force is pretty big, and the force looking after the removal of night-soil buckets and garbage, and street cleaning.

Mr. MADDEN. Do they collect the garbage?

Colonel GORGAS. Yes, sir.

Mr. KEIFFER. And look after the draining?

Colonel GORGAS. Yes, sir.

MEDICAL STOREHOUSES.

The CHAIRMAN. How many storehouses have you, Doctor?

Colonel GORGAS. About three or four, at present, Mr. Tawney. I could not say accurately. Of course, we have some sort of shelter at every place.

The CHAIRMAN. You estimate for two storekeepers on page 57, under the head of "Property division."

Colonel GORGAS. We have a storehouse at Colon, where all medicine and hospital supplies are distributed when requisitions are made. It is an establishment similar to Mr. Tubby's. He turned it over to us.

The CHAIRMAN. Why don't you leave it all in the general storehouse and have a requisition made on the general storehouse?

Colonel GORGAS. It was originally done so, but that has been a subject of discussion for a long time with the Commission. The medicine being more or less special, the facilities of getting at them ourselves on our own requisitions were more satisfactory. It was more satisfactory than under the other method on account of slowness of getting them.

The CHAIRMAN. They had a very poor organization then?

Colonel GORGAS. It was just developing then and had not been established.

The CHAIRMAN. The organization is fully developed now, and from the system which Mr. Tubby has introduced there I should think you could get your requisitions filled and complied with there just as well.

Colonel GORGAS. We could have it done very much better than before.

The CHAIRMAN. You have a carpenter and three clerks and eight laborers, and so forth, costing \$13,200 a year. In addition to that, you have \$800 for stationery and supplies, making \$14,000. If it is possible to abolish that storehouse of yours there and get your supplies from the general storehouse that supplies everybody else, we could just knock out \$14,000.

Mr. KEIFER. That is, you would knock out the storehouse?

The CHAIRMAN. I say, if they would utilize the general storehouse, it would save \$14,000.

Colonel GORGAS. We have at present over there in the property division three men at \$150 and no laborers at all. We have cut down that force.

The CHAIRMAN. You estimate for eight.

Colonel GORGAS. That is the nearest I could come to it.

Mr. MADDEN. Are these druggists?

Colonel GORGAS. No, sir; they are not druggists. They just care for the drugs and books. They are clerical.

The CHAIRMAN. As a matter of fact, if you need any hospital supplies you make out a requisition and send it to your storekeeper there at Colon, or wherever the store is—you send it to him, and it is sent to you by rail and delivered at the hospital?

Colonel GORGAS. Yes.

The CHAIRMAN. These storekeepers, therefore, are not connected with any hospital?

Colonel GORGAS. No.

The CHAIRMAN. Now, in view of the excellence of the organization under Mr. Tubby and the promptness with which you could have your requisitions filled, don't you think that every requirement of the service would be met by simply putting your supplies in the general store and make requisitions, as a business proposition?

Colonel GORGAS. I should hate to give it up. I have had so much trouble and such a struggle to get it, and it is now so satisfactory,

that I would not like to give it up. Of course the supplies and purchases pass through Mr. Tubby, but the purchasing is done by the Army purchasing agent in New York.

The CHAIRMAN. Is your feeling of unwillingness to give it up due to the fact that it is taken out of your administration, or due to some inconvenience that would follow in consequence of a change?

Colonel GORGAS. It is due to the fear of inconvenience. There are a great many things whose administration I would like to get rid of.

The CHAIRMAN. What are they, for example?

Colonel GORGAS. Well, as far as administration is concerned, I think probably we are the best equipped for taking care of the sick; but it runs up the sanitary expenses wonderfully, and it has no relation to sanitation, and as a matter of administration it handicaps it. That taking care of the sick is the principal thing I would like to get rid of. The expenses of the Sanitary Department are called sanitation. There we spend one-half of our money, with no relation at all to sanitation.

The CHAIRMAN. Your idea would be to segregate the hospitals from the Sanitary Department?

Colonel GORGAS. I would like to have it covered in all the reports and representation; but in so far as the administration is concerned, it can be adjusted just as the authorities please. I am not anxious to extend the department. I would like to contract it to absolute sanitation.

Mr. TAYLOR. Would that take off your storehouse?

Colonel GORGAS. It supplies the hospital supplies entirely.

Mr. TAYLOR. You would like to be confined to sanitation alone?

Colonel GORGAS. Yes.

Mr. TAYLOR. To what extent would that cut off your expenses?

Colonel GORGAS. About three-quarters.

Mr. KEIFER. That is, 75 per cent.

Colonel GOETHALS. But that would necessitate the organization of a health department—

Colonel GORGAS. Whatever you choose to call it.

Colonel GOETHALS. I wanted them to understand that the cutting of that off from you might necessitate an increase for somebody else.

Mr. TAYLOR. That would necessitate a separate health department, by whatever name it might be called?

Colonel GOETHALS. Yes; we would have two departments instead of one.

Mr. TAYLOR. And you have the Quarantine Department?

Colonel GORGAS. Yes; I would like to retain the quarantine as an essential part of my organization.

The CHAIRMAN. I made the inquiry as to what branch of your department you would like to get rid of, because it is so unusual for this Committee in Washington to find any bureau that is anxious to get rid of any power that I was curious to ascertain what particular branch of power you wanted to get rid of. [Laughter.]

Colonel GORGAS. I am not asking to get rid of it. It is just the expense of sanitation that I refer to.

Mr. GARDNER. You would be willing to transfer the property division to Mr. Tubby?

Colonel GORGAS. Yes. I do not advise it, but I am perfectly willing to try it.

Mr. KEIFER. You have tried it?

Colonel GORGAS. Yes; we ran about a year and a half.

Mr. GRAFF. What was the result?

Colonel GORGAS. We had delays.

The CHAIRMAN. That was before they got fully started.

Now, Doctor, do you think that the clearing of the ground and the making actual construction of ditches comes properly within your department?

Colonel GORGAS. I think that is sanitation. I think that is the most important part. That is the part I want to hold on to. I think that is the part that produces results. I do not think any of the rest of it has much relation to any of the results accomplished here.

Mr. BURLISON. How would it be for you to direct that a certain territory be cleared or drained, and have it done by the Engineer Department?

Colonel GORGAS. I do not believe it would work well. It depends on the promptness with which it would be done. The man in charge of it in the Engineer Department should be an expert mosquito man. You can not go into every field and puddle in regard to drainage. If it were put in effect I would like to have the engineer we have doing that work now transferred to the Engineer Department, but I do not think his chief would be as competent to assist and direct him as I have been in it.

QUARANTINE SERVICE.

The CHAIRMAN. Now take up the Quarantine Service. Who is your chief quarantine officer?

Colonel GORGAS. Doctor Perry, of the Quarantine Service of the United States.

The CHAIRMAN. Where is he located?

Colonel GORGAS. He lives at Ancon.

The CHAIRMAN. He is an officer of the Marine-Hospital Service?

Colonel GORGAS. Yes, sir.

The CHAIRMAN. What was his compensation before he came to the Isthmus? Do you know? His present compensation is estimated on page 57.

Colonel GORGAS. His compensation was \$4,500. That is his strictly service pay. Of course, when they are off they get commutation of quarters and things of that kind.

The CHAIRMAN. Here he is supplied with quarters, fuel, light, and everything.

Colonel GORGAS. Yes. He gets from the Commission \$3,700.

Mr. GARDNER. In addition to the \$4,500?

Colonel GORGAS. Oh, no; he gets from the Commission \$3,700. The other is his service pay.

The CHAIRMAN. When we appropriate for the Marine-Hospital Service we appropriate for his salary? That is \$2,500?

Colonel GORGAS. His total salary is \$7,000.

The CHAIRMAN. He gets \$4,000 from the Marine-Hospital Service and \$3,000 from the Commission?

Colonel GOETHALS. That is it.

The CHAIRMAN. Did you estimate to pay him out of this appropriation \$7,000?

Colonel GORGAS. That, of course, is an error, so far as it goes.

The CHAIRMAN. That applies to all the Service men, does it not?

Colonel GORGAS. Yes, sir.

The CHAIRMAN. How many of them are there?

Colonel GOETHALS. There is a Director of Hospitals and a Superintendent of the Ancon Hospital.

Colonel GORGAS. I will get you those figures.

The CHAIRMAN. Please make a memorandum of them and give the positions they hold, and calculate what their service would be, and send the same to me at Washington, or give it to us before we leave, either this afternoon or to-morrow morning, if you please.

Colonel GORGAS. Very well.

Following is the information referred to, supplied by Colonel Gorgas:

United States service men now in the employ of the Isthmian Canal Commission and their salaries.

A—ARMY MEDICAL DEPARTMENT.

Officer.	Army appropriation.	Commission appropriation.	Total.
Col. W. C. Gorgas, Chief Sanitary Officer.....	\$4,500	\$9,500	\$14,000
Maj. John L. Phillips, Superintendent, Ancon Hospital.....	3,500	3,500	7,000
Maj. C. C. McCulloch, Jr., Executive Officer.....	3,250	1,625	4,875
Capt. Theo. C. Lyster, Surgeon.....	2,200	2,300	4,500
Capt. Robt. E. Noble, General Inspector.....	2,200	1,100	3,300
Capt. Geo. H. Crabtree, District Physician, Culebra.....	2,200	2,200	4,400
Capt. Alex. Murray, Executive Officer, Ancon Hospital.....	2,200	1,100	3,300

B—NAVY MEDICAL DEPARTMENT.

Officer.	Navy.	Commission.	Total.
Surg. Jas. F. Leys, Superintendent, Colon Hospital.....	\$3,250	\$1,750	\$5,000
Asst. Surg. Trainer M. Shook, Physician.....	1,750	875	2,625

C—PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

Officer.	Treasury Department appropriation.	Commission appropriation.	Total.
Surg. Henry R. Carter, Director of Hospitals.....	\$3,500	\$4,500	\$8,000
Surg. James C. Perry, Chief Quarantine Officer.....	3,250	3,750	7,000
Passed Asst. Surg. C. C. Pierce, Quarantine Officer, Colon-Cristobal....	2,200	2,200	4,400

The CHAIRMAN. How many quarantine officers have you at Colon?

Colonel GORGAS. Two.

The CHAIRMAN. What compensation do they receive?

Colonel GORGAS. One from the Commission receives \$2,200, and the other \$2,400.

The CHAIRMAN. What does that make their aggregate salary?

Colonel GORGAS. From the Commission?

The CHAIRMAN. No; I mean the aggregate salary that each one of these two receives.

Colonel GORGAS. Of course, one of them is a Service man.

The CHAIRMAN. Which one?

Colonel GORGAS. Doctor Pierce.

The CHAIRMAN. What is his total compensation?

Colonel GORGAS. \$4,400. The other is a physician employee. His total compensation is \$4,100.

LABORATORY.

The CHAIRMAN. Doctor, I have been looking over your organization here, your laboratory, and I see you have got in it rather an expensive organization, I think.

Colonel GORGAS. That is a misprint in the bill. That is not so in our estimate. You have the laboratory in the Ancon Hospital estimate. It is a misprint, getting the laboratory too high. Our estimate would not show that.

The CHAIRMAN. I observe you have 51 employees in your laboratory.

Colonel GORGAS. That is an error in your printing of the estimate.

The CHAIRMAN. What is your estimate of the laboratory?

Colonel GORGAS. Our estimate of the laboratory, as it went in along with the gold employees, would be one chief of the laboratory, \$4,000; one pathologist, \$3,000; one chemist, \$3,000; one bacteriologist, \$3,000; two laboratory attendants, each \$1,020; total \$2,040. That is the whole laboratory force.

The CHAIRMAN. Now, under what head do you designate the others?

Colonel GORGAS. They belong to the Ancon Hospital. You see, Ancon Hospital just precedes that on the roll.

The CHAIRMAN. Are these men estimated for under the head of "Ancon Hospital?"

Colonel GORGAS. They are in my estimate; yes.

The CHAIRMAN. Are they here on page 21?

Colonel GORGAS. Yes. There has been a misprint. The laboratory is gotten up too high.

Mr. KEIFER. It ought to go in where?

Colonel GORGAS. From the word "laboratory" down to "one attendant" should be stricken out of Ancon and put at the end.

The CHAIRMAN. Do these employees that follow the words "two laboratory attendants" belong to Ancon Hospital?

Colonel GORGAS. Yes, sir.

Mr. TAYLOR. Has it been duplicated?

Colonel GORGAS. No.

Mr. KEIFER. The heading has been put in wrong.

CLERICAL FORCE.

The CHAIRMAN. How do the salaries of your employees, other than doctors and nurses, compare with salaries of employees in the States for like service?

Colonel GORGAS. Take the clerical force, like stenographers and so on, I have not any knowledge of the prices in the United States. Our clerks and stenographers run from \$100 to \$125 a month. Of course that gives them house, light, and fuel.

The CHAIRMAN. Your married clerks have quarters, do they?

Colonel GORGAS. We have quarters for them, some of them. We have not enough quarters for all our married men.

The CHAIRMAN. Do the married men who do not have quarters provide themselves with rooms out of their own salaries?

Colonel GORGAS. No, sir; they have bachelor quarters. We are crowded at Ancon. They run from two to three in a room.

The CHAIRMAN. I observe that the total number of officers and employees, other than skilled and unskilled labor, in your department is 681. That is outside of the skilled and unskilled men, for which you estimate \$164,760.

Colonel GORGAS. What page is that, Mr. Chairman?

The CHAIRMAN. That is the aggregate of all your labor outside of skilled and unskilled.

Colonel GORGAS. I see.

EMERGENCY LABOR FORCE.

The CHAIRMAN. In addition you have estimated for 1,747 skilled and unskilled employees for emergency and extra labor, and for them you estimate \$167,380. There is \$667,000 that you estimate for emergency purposes.

Colonel GORGAS. Let me get that, Mr. Tawney. I do not understand that at all. Do you refer to the deficiency estimate?

The CHAIRMAN. No, sir. You have \$36,630, I should say.

Mr. KEIFER. He has not the page. It is only fair to him to know what you are referring to.

The CHAIRMAN. I am referring to emergencies and extra labor. I said \$667,000, but that was a mistake. You have estimated \$33,630 for emergency purposes. Will you state how you arrive at that estimate?

Colonel GORGAS. Where have we estimated \$33,000 for emergency purposes?

The CHAIRMAN. I gather it from your estimates here. I do not know the exact place here, but I figured it out coming down on the boat.

Colonel GORGAS. I do not recollect the sum.

The CHAIRMAN. On page 26 you will find an estimate, "emergency sanitary work, \$32,280," and down farther, "extra labor in emergencies, \$500."

Colonel GORGAS. Yes. That was with the idea of any unusual call, any epidemic of any kind, any yellow fever getting in. For instance, in 1905, when we were doing the fumigation work in Panama, we had 500 men doing fumigation.

The CHAIRMAN. That is exactly what I wanted to find out at the beginning of the examination—whether your total estimate was on the basis of normal conditions, or whether it included any part for emergencies?

Colonel GORGAS. You know you asked me that with regard to hospitals. You were speaking of the sick.

The CHAIRMAN. You misunderstood me.

Colonel GORGAS. That is the only item for emergencies—this \$33,000. That is the only one.

LAUNDRY AT ANCON.

The CHAIRMAN. Is the laundry at Ancon under your charge?

Colonel GORGAS. Yes, sir.

The CHAIRMAN. Do you charge for service there?

Colonel GORGAS. We have a considerable pay roll.

The CHAIRMAN. Do you charge for work you do?

Colonel GORGAS. Yes; everything.

The CHAIRMAN. To employees?

Colonel GORGAS. Yes.

The CHAIRMAN. What is done with the receipts?

Colonel GORGAS. The receipts have been turned into the Treasury. I understand from the auditor that this appropriation bill allows it to come back to our funds. But up to the present time it has been turned into the United States Treasury.

The CHAIRMAN. Do you know what the receipts heretofore have amounted to—the annual receipts?

Colonel GORGAS. Approximate to the cost of the laundry. We almost pay our expenses. The laundry is charged to Ancon Hospital. Ancon almost pays for her washing by the receipts from other sources. That does not all mean cash. Of course, the Tivoli Hotel and other departments have been sending us in washing, which is charged to them, but it has been a very satisfactory financial arrangement to us.

MATERIALS, SUPPLIES, ETC., FOR SANITATION DEPARTMENT.

The CHAIRMAN. Now you have an estimate "For material, supplies, equipment, new buildings, and contingent expenses of the Sanitation Department on the Isthmus, \$743,400.80." Will you explain how you arrive at that estimate?

Colonel GORGAS. Commencing up there with the construction and repair of buildings, that estimate was made by the Construction Department on data furnished by us. Our data was a little less than they sent in.

The CHAIRMAN. Your estimate was a little less than the estimate they put in?

Colonel GORGAS. Yes.

The CHAIRMAN. What was your estimate?

Colonel GORGAS. Our estimate for new buildings was \$100,000, and our estimate for repairs was \$30,000, as I recollect it.

The CHAIRMAN. Why did they increase it?

Colonel GORGAS. We told them about what we wanted. They were the Constructing Department, and probably they thought it would cost more than we thought. We told them we wanted so many and such and such buildings.

The CHAIRMAN. Who is your chief builder?

Colonel GORGAS. Mr. Belding. He is chief of one of the divisions of the Engineer Department.

TABOGA SANITARIUM BUILDING.

The CHAIRMAN. Does this \$100,000 that you estimate include the \$10,000 you intend to spend at Taboga Sanitarium?

Colonel GORGAS. Yes.

The CHAIRMAN. And you estimate for a building there separate from the present sanitarium?

Colonel GORGAS. Yes.

The CHAIRMAN. I would like, after going over that with you, as we did on Sunday, to have you obtain from the chief builder, or somebody, an estimate on the cost of just extending that building by giving you in the extension the same amount of cubic capacity that you would have in a separate building. It seemed to me there would be no special advantage in having a separate building.

Colonel GORGAS. No; I think I would rather have but one building.

BUILDINGS FOR THE SANITARY DEPARTMENT.

The CHAIRMAN. Thus far you have had \$1,622,367.15 for material, supplies, equipment, and new buildings. That is for the last two years, including the current fiscal year.

Colonel GORGAS. I would have to look at the figures.

The CHAIRMAN. How much building have you done in the last two years, and how much building are you doing this year?

Colonel GORGAS. The building heretofore has not been done from our appropriation. The figures we do not estimate for at all. While they were put down as sanitary expenses, the Sanitary Department never estimated for them. The building that we have done in the past year, the principal building, was the Colon Hospital—those long buildings out there on the water. About half of that was put up, those big wards on land were put up; four or five sets of officers' and attendants' quarters were built on the ground, and then as you come along the line we have 18 and 20 bed hospitals. Coming to Ancon, would be the big building of the nurses' quarters, the big building of the bachelors' quarters there, and the raising of four or five of the wards. Now I do not think any construction for housing the personnel has been charged to the Sanitary Department along the line. I would have to see the auditor's figures to know just what that meant.

The CHAIRMAN. When you want a new building, who passes on the necessity of it and authorizes it?

Colonel GORGAS. It depends on the character of the building. If it is for personnel, in the way of quarters, we apply to Jackson Smith. If we want Jim Jones quartered, if there are quarters he quarters him; if not, he makes an estimate to the Chairman for a building to provide for him.

The CHAIRMAN. Do you include in your estimates this year buildings for the personnel of your force?

Colonel GORGAS. No, sir. Those are purely hospital buildings.

The CHAIRMAN. Who determines the necessity of hospital buildings and provides for their construction?

Colonel GORGAS. I send them to the Chairman.

Colonel GOETHALS. The full Commission acts upon all these requisitions after they are acted upon by me. The other method would require meetings of the Commission too often. [Laughter.]

The CHAIRMAN. Where do you intend to erect these new hospital buildings?

ENLARGEMENT OF ANCON HOSPITAL.

Colonel GORGAS. I asked for the figures in the estimate with the idea of increasing the capacity of Ancon, of raising the four wards around the operating room and the building between them. That would take up \$60,000.

The CHAIRMAN. I understood you to say you had just completed an addition to the Ancon Hospital?

Colonel GORGAS. Certain wards were raised, but these are asked for in addition to what have already been done.

The CHAIRMAN. Would not this construction work be cheaper if it were all done at once?

Colonel GORGAS. That would be a question for the builders to pass upon. But you might ask for more than you needed at the time if you did it all at once.

The CHAIRMAN. What other buildings do you ask for outside the Taboga Sanitarium and the Ancon Hospital?

Colonel GORGAS. You see, that estimate was made back in July, and also my deficiency estimate there. All the new construction that I contemplate now would be four buildings in the insane asylum. Unless some emergency comes, I am not going to ask to raise those wards. I am inclined to think we have enough. We built those wards for 70 patients. We have 121. We ask for additional capacity.

The CHAIRMAN. What did that cost?

Colonel GORGAS. Twenty-five thousand dollars.

The CHAIRMAN. And \$10,000 for the sanitarium is \$35,000?

Colonel GORGAS. Yes.

The CHAIRMAN. What other construction do you contemplate?

Colonel GORGAS. We ask for \$25,000 to finish the quarantine station.

The CHAIRMAN. That makes \$55,000. Since making your estimate what other construction do you contemplate? You said this estimate of \$123,000 was exclusively for hospital construction, and since making the estimate you think the Ancon needs no more addition?

PORTO BELLO HOSPITAL.

Colonel GORGAS. Yes. I will ask for \$15,000 for additional barracks at Colon. I will ask also for alterations in the Gorgona Dispensary, and \$200 I will ask for a small building, a small hospital, at Porto Bello, which is quite isolated up there, \$7,000.

The CHAIRMAN. At Porto Bello?

Colonel GORGAS. Yes.

The CHAIRMAN. That is 18 miles down from Colon, along the coast?

Colonel GORGAS. Yes.

The CHAIRMAN. How many men are we employing there?

Colonel GOETHALS. Very few now, but our stone-crushing plant is being put in there. That is where our crushed stone for the Gatun locks is coming from.

The CHAIRMAN. You estimate how much for it?

Colonel GORGAS. Seven thousand dollars for the building.

The CHAIRMAN. That would not amount to more than a detention hospital?

Colonel GORGAS. No.

The CHAIRMAN. And we appropriated \$2,500 for a hospital at Rock Island two years ago, where ten times as many men are employed as there are at Porto Bello.

Colonel GOETHALS. Mr. Chairman, there are times when you can not get up from Porto Bello for ten days.

The CHAIRMAN. I am not criticising the hospital, but the character of a building that would cost \$7,000. In this climate you would not need a building such as we would need at Rock Island.

Colonel GORGAS. The idea is to have a little building such as we have at Gatun, a 20-bed hospital.

The CHAIRMAN. How many men do you suppose, Colonel Goethals, you will have employed down there?

Colonel GOETHALS. About 200 or 300.

Mr. GARDNER. For how long?

Colonel GOETHALS. They will be there as long as the locks at Gatun are under construction.

The CHAIRMAN. The hospital would be constructed entirely of wood, would it not, and be a cheap construction?

Colonel GOETHALS. Most of the construction is pretty expensive down here. Seven thousand dollars is about the cost of the hospital at Gatun.

REPAIRS TO BUILDINGS.

The CHAIRMAN. You estimate \$50,000, Colonel, for repairs to buildings?

Colonel GORGAS. That is in the other estimate. In our letter we specified the repairs and asked for \$30,000.

The CHAIRMAN. That is \$20,000. Now what buildings are in need of repairs? Are they buildings taken over from the French, or ones that we erected?

Colonel GORGAS. Both kinds, you see, where the screening does not last long.

The CHAIRMAN. How long does it last?

Colonel GORGAS. It lasts two years if coated. Two years is a good long life. Plenty of it is a good deal shorter than that. Two years is a good big average. Those are heavy items in the expense.

STATIONERY AND OFFICE SUPPLIES.

The CHAIRMAN. Don't you think, Colonel, that your estimate of \$5,000 for stationery and office supplies for the Chief Sanitary Officer is rather an extravagant estimate?

Colonel GORGAS. Of course that head will cover a good deal more than that. You see, one item of rent for that building at \$325 a month would take \$4,000 of it.

The CHAIRMAN. That is in a rented building?

Colonel GORGAS. Yes.

The CHAIRMAN. You have an estimate, Office of Chief Sanitary Officer, stationery and office supplies, \$5,000, and stationery and office supplies under the property division, \$800.

Colonel GORGAS. Stationery and office supplies; of course that is the building and business over at Colon. The storeroom is over there. Five thousand dollars is intended to cover everything in the office at Panama.

The CHAIRMAN. That should have been divided, then?
Colonel GORGAS. Yes, it should have been.

ELECTRIC CURRENT.

The CHAIRMAN. You have an estimate of \$10,752 for electric current.

Colonel GORGAS. At Ancon Hospital?

The CHAIRMAN. Yes, on page 29. You are paying for the electric current?

Colonel GORGAS. We pay the Panama Railroad, and we pay them more than that. That is a conservative estimate. We hope to cut that down.

The CHAIRMAN. What rate do you pay?

Colonel GOETHALS. They pay by meter.

Colonel GORGAS. Something like 7 or 8 cents a thousand kilowatt hours.

The CHAIRMAN. Seven or 8 cents?

Colonel GORGAS. Yes.

The CHAIRMAN. Electric light current is pretty expensive down here?

Mr. TAYLOR. It is 10 cents in New York City.

The CHAIRMAN. It is 4 cents in my town, for manufacturing establishments.

Mr. MADDEN. That is different. They run it down to 3½ cents sometimes, depending on how much you use. They start it with a certain figure and run down.

Mr. TAYLOR. Do you know what the charge is in Washington and New York?

Mr. MADDEN. It is about 13 cents.

Colonel GOETHALS. The commercial rate in Washington is 10 cents. That is what I paid a year ago.

The CHAIRMAN. What light does the Tivoli Hotel get?

Colonel GORGAS. It is from the same establishment. I will ask Mr. St. Clair, who is chief clerk at Ancon, to give it. He says we pay 8 cents a kilowatt hour.

COST PER PATIENT IN THE HOSPITALS.

The CHAIRMAN. Now you have furnished the committee with the statement giving the details of the cost and maintenance per patient in the different hospitals, have you?

Colonel GORGAS. Yes, sir.

The CHAIRMAN. I will print that statement as part of your testimony. It is not necessary to interrogate you further on that.

Following is the statement referred to:

Please furnish a statement showing the actual cost per patient in each hospital in the Canal Zone, and the method of ascertaining such cost.

ISTHMIAN CANAL COMMISSION,
DEPARTMENT OF SANITATION,
Ancon, Canal Zone, November 9, 1907.

MEMORANDUM FOR THE APPROPRIATION COMMITTEE.

Referring to your memorandum asking for statement showing actual cost per patient in the hospitals of the Canal Zone and the method of ascertaining such cost, I wish to invite your attention to the attached tabulation showing

the average cost per day for each patient in each hospital and receiving hospital, together with the total average for the period January 1 to September 30, 1907.

These figures are obtained by dividing the amount of running expenses of each hospital, which includes all expenses of the hospital excepting building and permanent equipment—I. e., the amount of the pay roll, bills for subsistence supplies, invoices for drugs, dressings, and other expendable supplies—by the total number of days relief furnished patients.

For your information I wish to quote the following averages showing the per capita expenses of Bellevue and other hospitals for the years 1902, 1903, and 1904.

	1902.	1903.	1904.
Department.....	\$1.47	\$1.28	\$1.25
Bellevue.....	1.39	1.18	1.18
Gouverneur.....	1.63	1.67	1.43
Harlem.....	2.04	1.78	1.55
Fordham.....	1.97	1.86	1.82

Very respectfully yours,

W. C. GORGAS,
Chief Sanitary Officer.

Statement showing average cost per patient per day in receiving hospitals and hospitals of the Isthmian Canal Commission.

[January to September, inclusive, 1907.]

Ancon Hospital.....	\$1.98
Colon Hospital.....	1.87
Miraflores Hospital.....	.74
Culebra Hospital.....	1.25
Empire Hospital.....	.92
Paraiso Hospital.....	.71
Gorgona Hospital.....	1.04
Bas Obispo Hospital.....	.96
Tabernilla Hospital.....	1.53
Las Cascadas Hospital.....	.88
Taboga Sanitarium.....	1.70
Palo Seco Hospital.....	1.10
Gatun Hospital.....	.62
Cristobal Receiving Hospital.....	.367
Gatun Receiving Hospital.....	.297
Pedro Miguel Receiving Hospital.....	.298
Corozal Receiving Hospital.....	.239
La Boca Receiving Hospital.....	.884
Empire Receiving Hospital.....	.513
Culebra Receiving Hospital.....	.398
Paraiso-Cucaracha Receiving Hospital.....	.438
Gorgona Receiving Hospital.....	.365
Tabernilla Receiving Hospital.....	.462
Bas Obispo Receiving Hospital.....	.424
Las Cascadas Receiving Hospital.....	.540
Gorgona-Juan Grande Receiving Hospital.....	.456
East La Boca Receiving Hospital.....	.444

Average cost per day per capita for all patients in receiving hospitals and hospitals..... 1.54

PANAMANS TREATED IN SANTO TOMAS HOSPITAL (AGAIN).

Colonel GORGAS. I do not understand Mr. Madden's point about Santo Tomas Hospital, if that is of any importance.

Mr. MADDEN. I guess we had better not get into any argument about that.

The CHAIRMAN. Give us the figures as to the amount we have contributed to the construction of the hospital, and the amount we contribute toward its maintenance, and the number of patients—

Mr. MADDEN. And what percentage our contribution is to the whole expense of the hospital.

Colonel GORGAS. Yes.

The CHAIRMAN. And how much the Panamanian government contributes toward the operation and maintenance of the hospital. Then we will put that statement in, and you can square yourselves around. [Laughter.]

EXTRA FORCE ON ACCOUNT OF LEAVE AND SICKNESS.

Mr. GARDNER. Mr. Chairman, I would like to ask Colonel Gorgas as to the item on page 64, "Extra positions and allowances for leave of absence and sickness over and above the schedule numbers of personnel asked for by the hospital division, \$29,340." Is it not feasible so to manage your force as to allow leaves of absence without providing for an extraordinary force?

Colonel GORGAS. You know we have a certain number of physicians who can do the work. We have to make certain allowances for sickness and a certain allowance for leaves of absence. I mean there are a certain number of men, say 100 men, who can do the work. Now out of that 90 or 100 men, one-sixth would have to be on leave of absence all the time, and a certain ratio, say 4 per cent, you have to count upon as being sick. We have to make some provision for those.

Mr. GARDNER. In civil enterprises I do not think they make provision of that kind.

Colonel GORGAS. You would not make your force sufficient to allow those men to go on leaves of absence.

Mr. MADDEN. We would make those who are there do the work of those who are not there.

Colonel GORGAS. Of course if you have two stations apart you would have to have some one in another's place.

Mr. MADDEN. I suppose they have to have a siesta—is that what you call it?

Colonel GORGAS. Yes.

Mr. GARDNER. Could not this be cut out without affecting the efficiency of the force, except in some unforeseen emergency?

Mr. GILLET. I thought you told us that you let them go in the dull months.

Colonel GORGAS. Yes.

Mr. GILLET. If that is so, it would not require any force to take their places.

Colonel GORGAS. Not in the summer months. The total of all these doctors and nurses was made up to take care of the sick in the maximum, in the summer. It was explained that these various hospitals would count for so many, but we had to have so many more on that account. But that total number would be the number to take care of the sick in July and August.

Mr. BURLESON. In preparing that memorandum in reference to the physicians, not only give the number in 1904, 1905, 1906, 1907, and 1908, but the salaries paid each one.

Colonel GORGAS. Very well.

Following are additional documents filed by Colonel Gorgas:

NOVEMBER 12, 1907.

The following tabulation shows the number of female nurses, male nurses, and physicians discharged and resigned for the years 1904, 1905, 1906, and 1907:

	1904.	1905.	1906.	1907.
Nurses:				
Female.....	1	20	25	21
Male.....		3	11	14
Physicians.....	1	20	17	20

NOVEMBER 13, 1907.

On July 31 we had the maximum number of employees in Hospitals during the last year. In Ancon and Colon Hospitals there were 916, and in all the Receiving Hospitals there were 357, making a total of 1,273 employees treated.

NOVEMBER 12, 1907.

The following table shows the amount of money expended on Santo Tomas Hospital for labor, material, equipment, and other charges up to October 31, 1906:

Direct charges:

Labor.....	\$45,351.78
Material.....	31,811.31
Equipment.....	26,123.51

\$103,186.60

Indirect charges:

Proportion of Superintendence.....	6,666.45
Proportion of expense of securing, transporting, and caring for employees.....	6,780.60

13,446.72

Total..... 116,633.32

Of this amount the Panama Republic paid..... 42,500.00

Balance..... 74,133.32

Since that time the Commission has paid only the salaries of the Superintendent, 1 physician, 2 internes, and 3 nurses, which amounts to about \$12,000 per annum. The Superintendent of the Hospital states that the other expenses of Santo Tomas for a year amount to about \$75,000, which shows the Commission pays about 14 per cent of the total running expenses of this hospital.

The Sanitary Department has one large medical storehouse at Colon in which is stored medical and surgical supplies for issue to our various hospitals.

Besides this general storehouse, the Chief Sanitary Inspector has sixteen small storehouses, i. e., a shed at each station in which to store tools and such material as is being used on the work after it has been issued for use. At Tabernilla and Gorgona there are good-sized storehouses where shipments of mosquito wire and other heavy material is kept until it is needed at the various stations.

The Health Officer, Colon-Cristobal, has two small storehouses in which he keeps his tools and material for use.

The Health Officer, Panama, has his material for use stored in a room on the ground floor of the Administration Building; besides this he has a small carpenter shop in Panama where a small amount of lumber is kept for his work.

The estimated cost of the new building at Taboga Sanitarium is given by the Master Builder as \$10,000. He states in conversation with him over the telephone that if the same capacity were added to the present building at Taboga the cost would be 10 per cent less, or about \$9,000.

Please give a detailed statement as to estimates of \$123,000 for construction of hospitals, and \$50,000 for repair of hospitals, showing the amount proposed to be expended for each new hospital, the amount for repair of each hospital, and the places at which said hospitals are located.

ISTHMIAN CANAL COMMISSION,
DEPARTMENT OF SANITATION,
Ancon, Canal Zone, November 8, 1907.

MEMORANDUM FOR THE APPROPRIATION COMMITTEE.

Referring to your memorandum asking for a detailed statement of estimates to the amount of \$123,000, for construction of hospitals, and \$50,000 for repair of hospitals, I have to inform you that when the Commissioners were making their estimate for the fiscal year, 1908-9, Mr. H. H. Rousseau, head of department of building construction and municipal engineering, asked us for a rough estimate for building construction in this department for the fiscal year referred to.

We informed him that we would probably need about \$60,000 for the construction of hospitals, including all buildings used in hospital work, such as wards, quarters, messes, storehouses, etc. We also informed him that probably \$30,000 would be needed for repairs to hospital buildings.

In explanation of these figures, I would say that at that time it was contemplated to add one story to wards Nos. 1, 2, 3, and 4, at Ancon Hospital, which would probably cost \$35,000; a small hospital at Tabernilla was estimated for at \$6,000; a dispensary at Gorgona, at \$4,000; a barrack building at Colon Hospital for colored employees, at \$15,000.

Judging from the amount of money charged against hospital repairs during the past fiscal years, it was thought that \$15,000 would be required for re-screening and other repairs on Ancon Hospital; \$8,000 for similar repairs on Colon Hospital building; and \$7,000 for such repairs on various line hospitals, making a total of \$30,000. In addition to these figures we informed Mr. Rousseau that probably \$40,000 would be required for construction of miscellaneous buildings in this department, and \$10,000 for repairs to miscellaneous buildings occupied by us.

In explanation of these figures I would say that at that time it was contemplated to construct six combination store and living houses for sanitary inspectors, to be located at the following points: Gatun, La Boca, Paraiso, Gorgona, Culebra, and Ancon. These buildings were designed so as to provide quarters for the sanitary inspector on the second floor and an office and storehouse on the first floor; afterwards, however, the scheme was disapproved by the chairman—but some buildings of storehouse design will be required.

We estimated for such repairs to such buildings as these, to similar houses occupied by sanitary inspectors, to our general storehouse at Colon, and to the quarantine station and immigration stations, would cost in the neighborhood of \$10,000. This would make a total estimate of \$140,000, which we submitted to Mr. Rousseau.

Very respectfully, yours,

W. C. GORGAS,
Chief Sanitary Officer.

COMMITTEE ON APPROPRIATIONS,
HOUSE OF REPRESENTATIVES,
Washington, D. C.

NOVEMBER 22, 1907.

SIR: While Colonel Gorgas was before your committee at Ancon recently, you asked him to furnish you a statement of amounts charged against this department for building and repairs to buildings during our work on the Isthmus.

The only data we were able to obtain on this score is contained in a letter from the master builder which is taken from his cost sheets.

Trusting that this will be what you desire, I remain,

Very respectfully, yours,

C. C. McCULLOCH, Jr.,
Acting Chief Sanitary Officer.

HON. JAMES A. TAWNEY,
Chairman Committee on Appropriations,
House of Representatives, Washington, D. C.

CULEBRA, November 16, 1907.

SIR: Referring to verbal request of your representative in this office of a few days ago, I beg to advise you that the approximate amount expended on repairs and construction of hospital buildings, exclusive of quarters furnished hospital employees, from May 1, 1904, to June 30, 1907, is \$601,385.52, subdivided as follows:

	Repairs.	Construc- tion.	Total.
May 1, 1904, to July 1, 1905.....	\$83,671.97	\$11,628.13	\$95,300.10
July 1, 1905, to July 1, 1906.....	86,518.40	176,135.40	262,653.80
July 1, 1906, to July 1, 1907.....	42,286.67	201,145.95	243,431.62
Total.....			601,385.52

The buildings that received these charges are as follows:

La Boca: Dispensary.....	\$110.76
Ancon Hospital:	
Ward A.....	\$1,841.79
1.....	1,491.70
2.....	1,517.31
3.....	1,346.87
4.....	926.14
5.....	2,101.54
6.....	1,289.96
7.....	1,870.20
8.....	1,687.96
9.....	2,302.17
10.....	1,037.68
11 and 12.....	5,185.92
13.....	1,947.25
14.....	1,536.28
15.....	2,654.15
17.....	651.38
Furniture.....	6,761.52
24.....	246.50
18-19.....	3,663.77
20.....	194.97
21.....	43.90
Seven Leper Houses.....	9,809.14
Insane Hospital No. 1.....	33,851.87
St. Lazarus Hospital.....	10,629.50
St. Charles Mess Hall.....	1,672.90
Gate Houses 1 and 2.....	984.47
Smallpox House.....	960.00
Laboratory.....	5,343.45
Kitchen.....	4,728.11
Operating Room.....	1,720.65
Stable.....	312.79
Bakery.....	423.90
Outhouses.....	182.94
Old Distillery.....	1,011.49
Laundry.....	11,409.18
Community Building.....	11,510.47
Visitors' Salon.....	1,133.06
Roads.....	2,875.27
Screening.....	8,597.91
Temporary Body Storage.....	2,517.16
Guttering.....	90.96
Strangers' Ward.....	997.22
Plumbing.....	33,599.89
Tubercular Ward.....	16,923.21
Cemetery Fence.....	1,781.97
Medical Storehouse.....	738.67
Cemetery Road.....	742.94
Board Walks.....	1,267.12
Second Story to Wards 18 and 19.....	36,300.01

366 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Ancon Hospital—Continued.

Insane Asylum No. 2.....	\$44,313.51	
Prison Ward.....	9,213.51	
Drains.....	2,451.27	
Sick Camp No. 2.....	720.47	
Dispensary (Labor Camp).....	190.68	
Addition to Wards 9 and 10.....	1,320.32	
Contagious-Disease Ward.....	1,259.23	
Post-mortem and Disinfecting Building.....	68.62	
		\$301,993.69
Tivoli Hill: Dispensary.....		2,073.01
Taboga:		
Sanitarium Storehouse.....	845.56	
Sanitarium.....	13,347.00	
		14,192.56
Flamingo Island: Two detention houses.....		1,101.06
Palo Seco: Leper Colony.....		13,909.49
Corozal: Dispensary.....		963.17
Miraflores: Hospital Camps.....		12,692.30
Paraiso:		
House No. 8.....	540.43	
House No. 19.....	2,228.44	
Hospital, 16 Beds.....	10,224.43	
		12,993.30
Rio Grande: House No. 238.....		1,005.61
Culebra:		
House No. 82.....	6,750.44	
House No. 231.....	2,516.66	
House No. 232.....	2,141.15	
Hospital Addition.....	3,363.89	
Hospital Laundry.....	970.65	
Operation Room.....	3,885.69	
		19,633.48
Empire: Hospital.....		9,047.87
Cuenette: House No. 1002.....		1,625.09
Las Cascadas:		
House No. 4.....	3,080.34	
House No. 4½.....	7,068.14	
		10,148.48
Bas Obispo: House No. 34.....		4,376.58
Gorgona: Houses Nos. 56 and 57.....		4,759.68
Tabernilla: House No. 60.....		388.02
Gatun: Hospital, 24 Beds.....		13,174.51
Colon:		
Detention Barracks.....	13,877.59	
New Hospital on Coral Reef.....	60,652.36	
Operating Room.....	10,090.44	
Ambulance Shed.....	3,694.17	
Hospital Building, Colored (96 beds).....	26,153.36	
Hospital Storeroom.....	2,476.25	
Fence around Hospital reservation.....	1,032.81	
Sea Wall.....	2,671.91	
Laundry Building.....	28,374.46	
Hospital.....	21,974.04	
Morgue.....	1,140.63	
Panama Railroad Hospital.....	3,548.32	
House No. 27.....	99.84	
Hospital Board Walks.....	468.30	
Boat House.....	533.33	
		176,986.81
Total.....		601,385.52

Very respectfully,

W. M. BELDING, *Master Builder.*

Col. W. C. GORGAS,

Chief Sanitary Officer, Ancon, Canal Zone.

ISTHMIAN CANAL COMMISSION,
DEPARTMENT OF SANITATION,
Ancon, Canal Zone, November 18, 1907.

SIR: I am sending you herewith copy of letter from Master Builder, which gives some information asked for by you when going over the proposed appropriation for this Department.

Very respectfully,

C. C. McCULLOCH, Jr.,
Acting Chief Sanitary Officer.

CHAIRMAN COMMITTEE ON APPROPRIATIONS,
House of Representatives, Washington, D. C.

CULEBRA, CANAL ZONE, November 18, 1907.

SIR: Replying to yours of November 12 with reference to the question of cost of the new building desired at Taboga, it would be impossible to give an accurate estimate of the difference in cost of extending the old building and erecting the new one as designed. Since my talk over the telephone with you yesterday I have looked over the plans of the new building, and from my recollection of the construction of the old one I should say there would be very little, if any, difference in favor of the proposed extension, and I believe the new building as designed would be more satisfactory.

I would not, therefore, recommend the addition to the old building in place of the new construction on the score of economy.

Yours, truly,

W. M. BELDING, *Master Builder.*

C. C. McCULLOCH, Jr.,
Executive Officer, Ancon, Station A.

**STATEMENT OF HON. JO. C. S. BLACKBURN, COMMISSIONER AND
HEAD OF DEPARTMENT OF CIVIL ADMINISTRATION (GOV-
ERNOR OF CANAL ZONE).**

The CHAIRMAN. Governor, you are now at the head of the Canal Zone government as one of the Commissioners?

Mr. BLACKBURN. My official designation, Mr. Chairman, is Head of the Department of Civil Administration.

The CHAIRMAN. That means the Zone government?

Mr. BLACKBURN. Practically the civil government.

The CHAIRMAN. You are also a member of the Isthmian Canal Commission?

Mr. BLACKBURN. Yes; have been since the 1st of April last.

The CHAIRMAN. And you were appointed the head of the civil administration last Spring?

Mr. BLACKBURN. No. The appointment did not carry the assignment, Mr. Chairman. I was appointed as a member of the Commission at the time of its reorganization on the 1st of April last, and on my arrival on the Isthmus the Chairman of the Commission issued an order in accordance with instructions from the Secretary of War, devolving upon me the duties that had been by Executive Order conferred upon the Chairman in the month of March, those duties being the ones described by you in your question; but my assignment to those duties was made by an order issued by the Chairman of the Commission on the 9th day of May last.

EXECUTIVE SECRETARY.

The CHAIRMAN. Who is your executive secretary?

Mr. BLACKBURN. Mr. H. D. Reed.

The CHAIRMAN. Did you bring him with you?

Mr. BLACKBURN. No, sir; I found him here. He has been in that capacity for more than three years.

The CHAIRMAN. Do you estimate for his salary at the same rate for the next fiscal year as he is now being paid, \$4,000?

Mr. BLACKBURN. I think the estimate is \$5,000. I have the Book of Estimates here.

The CHAIRMAN. It is on page 17.

Mr. BLACKBURN. Four thousand dollars is the estimate. That is not his present pay.

The CHAIRMAN. What salary is he now receiving?

Mr. BLACKBURN. Thirty-six hundred dollars.

SCOPE OF DEPARTMENT OF CIVIL ADMINISTRATION.

The CHAIRMAN. Will you briefly describe to the Committee the nature and the work of your office, which requires one chief clerk and twelve other clerks?

Mr. BLACKBURN. This department, if it may be for convenience so described, Mr. Chairman, has been reorganized and renamed several times since our taking over the holdings of the French here upon the Isthmus. Gen. George W. Davis, of the Army, was at first its head. It has been known as the Government of Law and Sanitation. At that time what is now the Sanitary Department was a portion of this Department of Government, and so continued to be until probably the reorganization effected on the 17th of November, 1906, when it was separated from the Department of Civil Government and constituted a department independent and separate, and since that time it has been under the control and direction of Colonel Gorgas, who is at present its head.

There were various other duties devolving upon the Department of Civil Government that have been taken from it and located elsewhere. Records, before originally kept by that department, have been transferred to other departments; for instance, the Department of Labor, Quarters, and Subsistence. A corresponding decrease in the clerical force of this department has accompanied these transfers and abatements of duties, and I think a comparison of the records before those duties were taken from the Department of Civil Government and imposed upon others, either originally organized, like that of Sanitation, or already organized, like that of Labor, Quarters, and Subsistence, will show that a corresponding decrease in the force of the office has been made. I can give, if the Committee desires it, not a detailed statement of—

The CHAIRMAN. Have you a detailed statement there of the nature of the duties and the character of the work?

Mr. BLACKBURN. By whom?

The CHAIRMAN. By the present force.

Mr. BLACKBURN. I haven't it prepared in condensed form.

The CHAIRMAN. How does the organization, approximately, compare now in size with what it was under the previous organization? Do you know?

Mr. BLACKBURN. Yes; I can tell you. On the 31st day of January, 1906, there were 16 persons on the gold roll of that office, including the executive secretary. There were 11 clerks; the superintendent of the administration building in Panama, which is known as the

Administration Building owned by our Government, but situated in the city of Panama—

The CHAIRMAN. That is the building we acquired from France?

Mr. BLACKBURN. Yes; two watchmen and one messenger. That was the force at that time.

The CHAIRMAN. How does that compare with the force at the present time? Have you the same number now that you estimated for for next fiscal year?

Mr. BLACKBURN. Yes.

The CHAIRMAN. Then we have the comparison. Now go on with the other departments or bureaus.

Mr. BLACKBURN. The bureaus—

The CHAIRMAN. Say, the Division of Public Works.

Mr. BLACKBURN. Well, there is a Division of Public Works; there is a Division or Bureau of Police, and—

The CHAIRMAN. And Fire Department?

Mr. BLACKBURN. Yes; Fire Department, and of Schools, of Revenues, of Postal Affairs. They are embraced in the same bureau or division. The Superintendent of Posts has a multitude of duties to perform. He has charge of the rents. Wherever there is a lease of land within the Zone, it is done through his office.

The CHAIRMAN. Through the office of Superintendent of Posts or Superintendent of Public Works?

Mr. BLACKBURN. No; Posts.

The CHAIRMAN. You do not estimate for a Superintendent of Posts, but for one postmaster. Is he the person you refer to?

Mr. BLACKBURN. Oh, no. That is the postmaster in the building. I thought you called for an enumeration of the divisions or bureaus that go to constitute this Department of Civil Government.

The CHAIRMAN. Yes. Right there, let me enumerate those that are in the estimate. First is the Executive Office. That is your office?

Mr. BLACKBURN. Yes.

The CHAIRMAN. Next is the Division of Public Works?

Mr. BLACKBURN. Yes.

The CHAIRMAN. Next the Fire Department?

Mr. BLACKBURN. Yes.

The CHAIRMAN. Then comes the Judiciary.

Mr. BLACKBURN. Yes.

The CHAIRMAN. Then the Police Department?

Mr. BLACKBURN. Yes; that is four.

The CHAIRMAN. Then the Department of Revenue?

Mr. BLACKBURN. Yes; that is five.

The CHAIRMAN. The collection of taxes?

Mr. BLACKBURN. That is in the Department of Revenues. That is a subdivision.

The CHAIRMAN. Next is the Postal Division.

Mr. BLACKBURN. That is another subdivision. That, with rents, is in the Department of Revenue. Mr. Cooke has charge of it.

The CHAIRMAN. The Superintendent of Posts you are referring to now is estimated for as Collector of Revenue?

Mr. BLACKBURN. He is both. The head of that bureau, Mr. Cooke, collects all the customs revenues; he collects all the internal-revenue taxes; he collects all the rents on real estate; and he has charge of the

postal service on the Zone. All of those constitute the one division, or bureau.

Mr. BURLESON. He is quite a functionary?

Mr. BLACKBURN. Yes.

THE CHAIRMAN. Now, in the Division of Public Works, Senator, has that force of employees been reduced since the reorganization of the Department of Civil Government?

Mr. BLACKBURN. Yes; but in answering that I should add, in order to make myself clear, Mr. Chairman, that it was found, upon the reorganization of this Commission, that there was an overlapping and a duplication of work to some extent between that bureau or Division of Public Works and the Mechanical Construction or Engineering Division of the Canal Commission, and the Commission deemed it wise and in the direction of economy that that duplication should be eliminated as far as it was possible, and Mr. Commissioner Rousseau, who is at the head of that department of the Canal Commission, and myself were directed to confer together and divide and segregate the work, putting what seemed to be naturally dropped to his department under his subordinate engineer, and taking what seemed naturally to come to the Public Works, which constituted a bureau in the Civil Government Department of the Zone to that officer. That was done upon conference with entire satisfaction and approved not only by Mr. Rousseau and myself, but by the two engineer officers; I mean his chief engineer officer and the Superintendent of Public Works, who represented the Canal Zone Civil Government in one of its bureaus.

The CHAIRMAN. So that the department of Mr. Rousseau has the Department of Municipal Engineering and you have the Department of Public Works?

Mr. BLACKBURN. Yes. That, as you probably are aware, embraces the water and sewerage systems of the two foreign cities of Colon and Panama. They are still under Mr. Campen, who is the Superintendent of Public Works, and that bureau or division is associated with the Department of Civil Government.

PLUMBING AND WATER INSPECTORS.

The CHAIRMAN. In that division you have a plumbing inspector, at a salary of \$2,400 a year, and you have five water inspectors. They perform that duty not only in Panama and Colon, but all over the Zone as well.

Mr. BLACKBURN. Yes.

The CHAIRMAN. Are their duties of such a character as to justify a salary of \$1,500 a year?

Mr. BLACKBURN. I should think from the personal observation that I have been able, during the months I have been here, Mr. Chairman, to give, that those were not comparatively high salaries.

The CHAIRMAN. What is the character of their work?

Mr. BLACKBURN. First, the custody and care and maintenance of the water system and the sewerage system here—

The CHAIRMAN. Does not that properly come under the jurisdiction of the superintendent and engineer of that department?

Mr. BLACKBURN. They have to be inspected, and every complaint lodged has to be inquired into.

The CHAIRMAN. They have nothing to do with the matter of inspecting or analyzing the water, have they—inspection for the purpose of determining the purity of the water?

Mr. BLACKBURN. No, of course, they are not presumed to be competent to make an analysis of the water.

The CHAIRMAN. They simply go around and examine the plant?

Mr. BLACKBURN. Yes; examine conditions and look into complaints.

The CHAIRMAN. They do not make repairs?

Mr. BLACKBURN. They make the minor repairs. Mr. Chairman, but where there is serious difficulty, of course they are not experts enough; but they have to answer to every complaint made by every water-rate payer. Their business is, of course, to hunt for every leak as well as to go in person to ascertain and determine and repair any trouble that a water-rate payer may find.

The CHAIRMAN. Have you a meter system?

Mr. BLACKBURN. Yes, sir.

The CHAIRMAN. Do they read the meters?

Mr. BLACKBURN. Yes; they do.

The CHAIRMAN. And make reports to the central office, in addition to inspection?

Mr. BLACKBURN. Yes.

Mr. MADDEN. And report any new building under construction?

Mr. BLACKBURN. Yes; in order to make the water connections.

The CHAIRMAN. I see you have in this bureau three clerks, one of which you designate as chief clerk. Is that for the purpose of giving him \$1,800 salary, or is it because he is doing excess work or a higher grade of work?

Mr. BLACKBURN. This is an exceptionally efficient man, and I will say further that a consolidation of work has been effected in that office of the Superintendent of Public Works, so that with equally satisfactory results two men are to-day practically doing the work that three were doing before.

Mr. BURLESON. Hard to believe. [Laughter.]

Mr. BLACKBURN. Yet I think we can submit satisfactory evidence of the facts in this case. I think we are fortunate in the fact of the Chairman's directing his attention to this case, because there might be other cases where we could not answer so confidently.

The CHAIRMAN. Don't your plumbing inspectors perform practically the same duties as your water inspectors do?

Mr. BLACKBURN. No, Mr. Chairman; the duties are very different.

The CHAIRMAN. Could they not perform the same duties? They travel over the same territory and examine practically the same buildings and the same work. The maintenance of the water system comes largely in the line of a plumber.

Mr. BLACKBURN. It partakes of the same work, but there are essential differences in the two.

The CHAIRMAN. I understand. What I mean is that a man who is a good plumber is able to inspect any water system.

WATER SYSTEM OF PANAMA AND COLON.

Mr. BLACKBURN. On that subject of water, Mr. Chairman, I would like for you and the other gentlemen present to have a correct

idea of the exceptional amount of trouble that I have had in that connection. As a sanitary measure the Government determined not only to provide a water system, but a sewer system for these cities of Panama and Colon, and also to lay the pavements; and at an enormous expense those things have been carried through. Now our hope and our only chance for reimbursement for these advances made to these Panamanians is through an agreement for the readjustment of water rates to be paid by these two municipalities of Panama and Colon, and there has been no end of trouble that has attended the efforts with them, which have been closed successfully, for an agreement for the amortization of that debt.

These people are not yet through complaining, and that very grievously, as the Chairman of the Commission to his sorrow knows, of our obligations with reference to the supply of water furnished to them. They have but within the last two or three weeks scarcely avoided public meetings of indignation because of the condition and character of the water that we were furnishing to them, and the Chairman, as well as myself, has been called into frequent conferences with the Secretary of State of the Panamanian Government on that subject. However, the incident has been closed, including the discussion of the water taxes and the rates to be assessed and collected, and to whom credited. It must be stated that whilst their complaints have been numerous, their payments and their meetings of their water-rate obligations have been exceptionally satisfactory.

The CHAIRMAN. You say their complaints were as to the character of the water we were furnishing ?

Mr. BLACKBURN. Yes ; grievously.

The CHAIRMAN. In what respect ?

Mr. BLACKBURN. They claim that there was an offensive odor to it, which was true, whilst at that very time, as the Chairman and myself insisted in our conference with Secretary Arias, we were using the same water from the same reservoirs with themselves, the only difference being that they had a filtration plant and we had not.

The CHAIRMAN. Did we furnish their filtration plant ?

Mr. BLACKBURN. Yes; that was a part of the advancement we made in supplying them with water.

The CHAIRMAN. Where is the source of the water supply of Panama ?

Mr. BLACKBURN. It is brought from what is known as the Rio Grande Reservoir, which you gentlemen probably saw on your trip, coming in this side of Culebra.

Mr. KEIFER. We have seen it several times.

The CHAIRMAN. Where did they get their water from in Panama before ?

Mr. BLACKBURN. From the wagon ruts of their muddy streets, as a rule, at 20 cents a pint for bathing purposes. [Laughter.]

The CHAIRMAN. And they were complaining of the character of the water we are now furnishing them from the Rio Grande Reservoir ?

Mr. BLACKBURN. Yes, sir; and that complaint is pending now, though the temporary objectionable odor, I am glad to say, was abated before you gentlemen reached the Isthmus.

Mr. KEIFER. What abated it ?

Mr. BLACKBURN. The treatment that we subjected the reservoir to—a sulphate of copper treatment—

Colonel GOETHALS. And by compressed air. [Laughter.]

Mr. KEIFER. What produced the odor? Was it an unhealthy thing?

Mr. BLACKBURN. It was carefully examined, not only by the expert of the sanitation department, Colonel Gorgas's department, but also by a special representative of the Department of Agriculture here from Washington. They united in their conclusions that it was innocuous as to health. This foreign matter that produced the offensive odor—I had samples of it on my desk for months. Probably some are there to-day. It went to the bottom as a sediment and settled there. But these chemical analyses proved to the satisfaction of the experts making them that it was not at all harmful to health, although it was offensive to the olfactories. That difficulty, however, has been removed by the treatment of sulphate of copper.

The CHAIRMAN. Has there been any complaint on account of the prices charged?

Mr. BLACKBURN. No. On the contrary, we arrived without serious difficulty at a conclusion with the Panamanian Secretary of State as to the rates to be charged in the city of Panama, looking to the amortization of this debt in the agreed and allotted time of fifty years. We also agreed on the water rates to be charged in Colon, but we found that we had put the rate in Colon higher than there was any necessity of putting it, based on the records of consumption at that time available. But the records of consumption after that and up to the present time showed such an increase that it was made perfectly safe to lower the rates as suggested in the city of Colon, and yet have a satisfactory margin. We knew, for instance, how much money we had to raise every year in order to pay off this debt in fifty years. That was an ascertained amount, say \$65,000. Our agreement with the Government of Panama was, of course, that whatever deficit should remain, if, indeed, there should be any; if, after raising the \$65,000, the Government of Panama owed us, it must repay us. Whatever surplus there should remain of our water collection over and above the amount necessary to meet our fifty-year payment on the debt she owed us, we, of course, should refund. We found from the records of consumption for the last three months that the increase had been so great that the margin might be lowered. The water rates in Colon might be lowered 10 per cent below those originally suggested, and yet we would be quite sure that we would have a surplus of money collected from the Panamanians which we would have to refund to them.

Mr. MADDEN. In reaching the amount to be paid to the Panamanians from the water revenues was any account taken of the total cost of the plant and the amount invested?

Mr. BLACKBURN. Yes; the whole investment.

PAVING STREETS IN PANAMA.

The CHAIRMAN. The streets of Panama are under this department, too, are they not, Senator?

Mr. BLACKBURN. Yes, sir.

The CHAIRMAN. Are we doing any new work in connection with paving the streets of Panama?

Mr. BLACKBURN. We have not yet completed the work.

The CHAIRMAN. When we commenced was there a complete plan of the streets that would be paved by us?

Mr. BLACKBURN. No.

The CHAIRMAN. Who was to determine the extent of street paving that we are obliged to do?

Mr. BLACKBURN. We have done all that we are under any obligation to do. All the additional street paving we are doing now is simply at their request and upon our own terms. I have, Mr. Chairman, here now the superintendent of public works, who was from the first identified with this work and who has been in charge of it from the beginning of its construction, and he is perfectly familiar with all the details of it.

The CHAIRMAN. You would rather we hear him on that?

Mr. BLACKBURN. I think it would be more satisfactory to you.

The CHAIRMAN. We have an estimate for repairs here.

Mr. BLACKBURN. I will refer you to him.

FIRE DEPARTMENT.

The CHAIRMAN. You also have the Fire Department under you. Has that anything to do with the Fire Department of Panama and Colon, or is it confined exclusively to the Zone?

Mr. BLACKBURN. I would answer that in this way: We have some property in the cities of Colon and Panama. The Panama Railroad owns a great deal of property here. The United States owns that Administration Building that is down in the center of the old city. We have an agreement with the Panamanians—and a case in point came out very recently, in the last two or three weeks, when some of the buildings of the Panama Railroad Company were burned, and there was some inconsequential clash of authority there—we have an agreement now with the Secretary of State by which the Panamanian fire department is subordinate to the direction and control of the Zone Fire Department whenever any property of the United States or of the Panama Railroad Company situated in Panamanian territory is burning or attacked by flames or threatened, it being the rule that the Panamanian fire forces are to render assistance only upon request, and subject to the direction of our authority when it is our property that is in Panamanian jurisdiction; and the reverse of the rule applies under reverse circumstances—that we are to render them assistance when they call upon us, subject to the direction and authority of the Panamanian fire department.

The CHAIRMAN. Where is this Fire Department located?

Mr. BLACKBURN. In 1905 there was but one fire station, and that was true up to 1906; that was at Cristobal. There was but one organization in the shape of a Fire Department. This Fire Department really was only in process of organization within the last eighteen months. There was one company prior to that time, with one small fire engine and hose cart and hook-and-ladder truck at Cristobal, and one company equipped with combination hose and chemical engine at Ancon. At other points the property of the Commission was protected only by patent fire extinguishers and companies of volunteers.

The CHAIRMAN. How much equipment have you now?

Mr. BLACKBURN. I was just coming to that. I was about to answer as to the organization. We have ordered additional equipment, but practically we have nothing more than I have already indicated to you.

Mr. GILLETT. What have you ordered, Governor?

Mr. BLACKBURN. The acting chief of the Fire Department is not here.

Mr. GILLETT. I did not mean exactly; I mean the general character of it.

Mr. BLACKBURN. I can prepare without any trouble a memorandum embracing every bit of it, if the Committee desires.

The CHAIRMAN. Yes; and I would ask you also to prepare and incorporate and give me, before we go to-morrow, a statement of what you contemplate purchasing under the estimate of \$10,000 for the fiscal year 1908, giving the memorandum as to both.

Mr. BLACKBURN. I will gladly do that.

The CHAIRMAN. Now where is the Fire Department at present located?

Mr. BLACKBURN. Its headquarters are at Ancon. It has its organizations now all along the line, from Cristobal to Ancon.

The CHAIRMAN. I do not mean volunteers, but I mean the paid organization. Where is it located?

Mr. BLACKBURN. At Cristobal.

The CHAIRMAN. And at Panama?

Mr. BLACKBURN. At Ancon, up on the hill here. Now there are two other points estimated for, Mr. Chairman—three other points outside these two terminal points. In that connection I would like to ask the attention of the Committee to the fact that at Empire, at Gorgona, and at Culebra, making five points covered by the estimate, including Cristobal and Ancon—

Mr. BURLESON. Where you propose to maintain a paid fire department?

Mr. BLACKBURN. Yes, a paid fire department.

Mr. BURLESON. What is the matter with a volunteer fire department?

Mr. BLACKBURN. It is not as safe or satisfactory, from the experience we have had with it. I may say to the Committee that I do not think a week has passed since I have been on the Isthmus in which I have not been forced to call the attention of the heads of the different departments to the absence from the fire drill of men on their rolls who were members of the fire organization in the Zone.

The CHAIRMAN. Have you any report showing the number of fires that you have had in the last year along the Zone?

Mr. BLACKBURN. Yes.

The CHAIRMAN. Can you give us a statement of it?

Mr. BLACKBURN. Prepare it for you?

The CHAIRMAN. Yes.

Mr. BLACKBURN. Without trouble, yes.

Mr. TAYLOR. In that statement, if you have the data for it, will you add the absences you speak of?

Mr. BLACKBURN. Yes. As I tell you, they are of weekly occurrence. The fire drills are usually held between 4 and 5 o'clock on Saturday afternoon.

The CHAIRMAN. That is a matter of discipline?

Mr. BLACKBURN. Yes; and that is the difficulty of getting on with these volunteer organizations.

The CHAIRMAN. Have you, at those places where you intend to locate paid fire departments, a water system?

Mr. BLACKBURN. Yes; the water system extends all along the Zone.

The CHAIRMAN. Where do we get our power? Is it pumped from the reservoir?

Colonel GOETHALS. It is all pumped from the reservoir.

Mr. KEIFER. What he means is the power to throw the water on the fire.

The CHAIRMAN. Do you mean to use the hydrants or engines?

Colonel GOETHALS. We have sufficient pressure from the reservoir. The pressure is sufficiently great.

The CHAIRMAN. By gravity?

Colonel GOETHALS. Gravity.

The CHAIRMAN. How is that at Culebra?

Colonel GOETHALS. We have the Mount Zion Reservoir on the top of a hill there, back of our house. Then at Empire we have a tank which gives about the same. We have got to pump up to that reservoir at Culebra, and also to that tank at Empire, but that is done by the ordinary pumping plant.

The CHAIRMAN. Can you tell us, Senator, what the organization of your Fire Department will consist of when it is completed, as you have estimated for it for the next fiscal year? How many captains, lieutenants, engineers, etc., do you estimate for?

Mr. BLACKBURN. It will consist of a chief, one fire chief, an assistant chief, six captains, six lieutenants, one chief clerk, one clerk, and a messenger.

CHIEF CLERK, FIRE DEPARTMENT.

The CHAIRMAN. Why do you need a chief clerk in the Fire Department?

Mr. BLACKBURN. I will say this, Mr. Chairman: That this is a very natural question, and I am not surprised at its being propounded; and I answer in this way. As you know by the salary proposed, it is not because he is considered to be of any more value than the man next in grade to him, because their salaries are estimated at the same amount, \$1,800.

The CHAIRMAN. His salary is \$2,100, and the other is \$1,500. I am talking about the chief clerk, \$2,100—

Mr. BLACKBURN. As against \$1,500 to his deputy or assistant. Those are the estimates, \$1,500 and \$2,100.

The CHAIRMAN. In an organization of this kind why don't you call them both clerks instead of one chief clerk and the other a clerk?

Mr. BLACKBURN. The same question might be applied to many other places down the list, Mr. Chairman, and I very much doubt whether it would be well to have it so. There would then be no superiority of authority in the one over the other.

The CHAIRMAN. There would be the same superiority of authority if you simply designated this man to be above the other man.

Mr. BLACKBURN. I had thought it might be well to give more authority to one than to the other. For instance, you take a first

assistant chief and six captains. That assistant chief does not get any more salary than each of the six captains does, but in the absence of the Fire Department chief himself he is a ranking authority; that in emergency ought to be valuable. He gets no more pay for it, but it does give him a designation superior to the six captains.

Mr. TAYLOR. That is all right in a chief and assistant chief and captain and lieutenant, but what we want to know is why you require a chief clerk and a clerk in the fire department.

Mr. BLACKBURN. There is a good deal of difference in the efficiency and capacity of those two men.

The CHAIRMAN. Here is what I am trying to get at: You have a Fire Department here with a chief and assistant chief, a captain and six lieutenants, in all 14 men. Now in the little town where I live they have a fire department with four or five fire-engine houses, and they have four times, if not more, that number of men in the fire department, but they have no clerks at all. What is the necessity for clerks in a fire department, especially in one so small as this one? I am talking about the clerks, not the officers.

Mr. BLACKBURN. Well, those records must be kept. Every absence from a fire drill must be noted. Every delinquent who does not without satisfactory excuse discharge his duties must be —

The CHAIRMAN. That ought to be the duty of the chief.

Mr. BLACKBURN. As to the chief, I find, from having to handle his reports and look into his duties, that he ought to be a very busy man if he gives proper attention to the pressing features of the work devolved upon him.

Mr. MADDEN. As a rule a fire chief is not a clerk, anyway.

Mr. BLACKBURN. No. You must remember, Mr. Chairman, that the Government of the United States has invested eight million dollars—I speak in round numbers—in the buildings it has constructed. It took over from the French in its bulk purchase in round numbers about the same number of buildings. What the value of the contents of all those buildings may be of course each member of the Committee is as competent to form an approximate idea as I. But it is an immense deal of property that the Government has to risk. The policy of the Government always has been to take its own risk and carry no insurance. It carries no insurance on its public buildings anywhere. Now there are eight millions that we have invested in the construction of buildings since we took over the French holdings, and probably an equal amount purchased from them, to which sixteen millions must be added for the present contents of all those buildings. I think it would be a safe and conservative estimate to say that the Government has twenty million dollars' worth of property here at fire risk, and no fire insurance covering a dollar of it; so that it would seem to me that it is the part of wisdom and economy to equip ourselves as well as we may for the contingencies that are likely to arise. You must also consider the exceptionally inflammable nature and character of the buildings, for they are all tinder boxes. They are not built of brick or stone. They are built of seasoned lumber.

Mr. BURLESON. And for that reason we must have a chief clerk in the Fire Department?

Mr. BLACKBURN. I do not know now, but I say if two clerks were needed there, and their reports would indicate the necessity to me, I

think it would be well to have one at least of superior rank to the other. [Laughter.]

Mr. BURLISON. I think your argument is conclusive about investing him with superior authority if you are going to have him, but why have him at all? That is the main point.

Mr. J. K. BAXTER, Chief Clerk, Acting Executive Secretary. Mr. Chairman, the Fire Department is responsible for a great quantity of property all over the Isthmus. It maintains these chemical extinguishers at all points on the Zone and keeps a record of them and maintains a weekly inspection of these extinguishers. It has charge of all the hose installed in Commission buildings and renews that hose and keeps a record showing where each piece of hose is located; and the keeping of that record involves a great deal of clerical work. In addition to that, the chief of the Fire Department is a practical fireman, but he is a man of little education and he is quite incompetent himself to handle the clerical work and correspondence of his office, and for that reason it is necessary to have an unusually competent man in charge of his office to do that record work and to handle the correspondence of his department.

Mr. BLACKBURN. His reports, of course, are made to my office regularly, but there is not a fire that occurs along the line that is not reported promptly by the chief of the Fire Department, with all the facts attendant, with a statement of the approximate loss, and all that, so that I should conclude that there was more clerical work there than one clerk was competent to do.

Mr. GILLET. All this record work has to be done only when you get new materials. You have a record of the old materials already?

Mr. BLACKBURN. There is another duty that devolves upon the Fire Department. Executive Orders have been issued and laws have been enacted under the authority of Congress by action of the Commission, looking to the protection of these public buildings from the storing of inflammable materials in these buildings. There is not a week that passes by that the Fire Department does not call my attention, and I in turn the attention of the General Manager of the Panama Railroad Company and heads of departments of the Government here, to violations of these rules and regulations, where there will be gasoline in large quantities stored in the supply houses or in the commissary buildings in violation of the regulations and laws.

The CHAIRMAN. Senator, if this clerical work which is done by the chief clerk and his assistants in the office of the Fire Department were transferred to the Executive Office and done by the clerks employed there, would that give them more work than they could do?

Mr. BLACKBURN. I think it would necessitate an increase of the force in the executive office, Mr. Chairman. I do not think there is any surplus of employees there.

The CHAIRMAN. I do not know anything about it. I just wondered.

Mr. BURLISON. You see we are in the throes of a panic in the United States, and we are looking for economies everywhere.

Mr. BLACKBURN. I am glad to know, however, from the press dispatches that the panic has passed since you gentlemen left New York. [Laughter.]

Mr. MADDEN. It was lucky we left.

MR. BLACKBURN. I hope that nothing of that feeling remains in the minds of the Committee, because I do not want you gentlemen to come down here with the remains of a panicky feeling.

POLICE DEPARTMENT.

The CHAIRMAN. Now, Senator, I have a statement which has been submitted to me by the Chief of Police, covering the whole work of his office, and I will just have that printed in connection with the hearings under this head.

Mr. BLACKBURN. Yes. I have examined it, and I think it a very complete and full statement.

The CHAIRMAN. He has made out the statement in detail of the number of policemen on the force, and the compensation they are receiving, and all that.

Following is the statement referred to:

Total strength of police force and summary of pay roll.

	Number.	Amount.		Number.	Amount.
1904.			1906.		
May.....	77	\$1,953.20	February.....	206	\$10,656.25
June.....	81	2,459.36	March.....	205	11,231.19
July.....	85	3,059.25	April.....	210	11,763.22
August.....	77	3,604.33	May.....	209	11,597.67
September.....	87	3,401.40	June.....	220	11,891.26
October.....	90	3,928.61	July.....	232	12,317.19
November.....	92	4,136.47	August.....	247	13,067.40
December.....	93	4,316.35	September.....	249	13,527.43
			October.....	246	14,629.22
1905.			November.....	213	14,425.94
January.....	93	4,266.19	December.....	165	10,948.00
February.....	93	4,387.67			
March.....	92	4,415.08	1907.		
April.....	116	5,379.52	January.....	168	10,746.26
May.....	125	6,296.91	February.....	181	11,750.54
June.....	132	6,655.50	March.....	193	12,485.78
July.....	129	7,178.92	April.....	196	12,429.26
August.....	133	7,271.20	May.....	184	12,506.29
September.....	168	7,374.46	June.....	184	11,855.20
October.....	191	9,130.84	July.....	195	11,779.32
November.....	193	9,869.82	August.....	201	14,229.06
December.....	189	10,125.02	September.....	200	14,068.93
			October.....	198	14,473.66
1906.					
January.....	204	10,743.74	Total.....		382,333.40

Number and location of force November 1, 1907.

[illegible]

Number and location of force November 1, 1907—Continued.

	Captain.	Chief clerk.	Clerks.	First lieutenant.	Second lieutenant.	Sergeant.	Corporals.	First-class policeman.	Policeman.	Total.
Las Cascadas.....							1	5		6
Bas Obispo.....							1	4		5
Las Cruces.....									1	1
Gorgona.....				1	1	1	3	7		13
Matachin.....							1	1		2
Camp Matachin.....								1	1	1
Mamel.....							1			1
Juan Grande.....							1			1
San Pablo.....							1	1		1
Tabernilla.....							1	1	2	4
Bohio.....						2		1	1	3
Gatun.....						1	5	1		7
Cristobal.....			1		3	1	10	14		29
Playa de Flor.....								1	1	1
Mount Hope.....								1	1	2
Total.....	1	1	7	1	1	11	18	70	88	198

Extra details furnished continually from above force.

Pay Guards for Panama Railroad.....	3
Pay Guards for Isthmian Canal Commission.....	7
Regular Train Guards for Panama Railroad.....	5
Ancon Hospital.....	7
Colon Hospital.....	1
Empire Shops.....	1
Gorgona Shops.....	1
Commissary at Cristobal.....	4
Quarantine duty at Colon.....	1

Quarantine duty at Ancon, no number specified.

Total number of arrests from June 1, 1904, until November 1, 1907.

1904.	1906—Continued.
June..... 27	February..... 311
July..... 103	March..... 302
August..... 141	April..... 345
September..... 157	May..... 391
October..... 149	June..... 344
November..... 171	July..... 405
December..... 233	August..... 502
	September..... 538
	October..... 487
	November..... 503
	December..... 511
1905.	1907.
January..... 195	January..... 520
February..... 226	February..... 507
March..... 217	March..... 653
April..... 223	April..... 530
May..... 168	May..... 535
June..... 120	June..... 545
July..... 155	July..... 431
August..... 197	August..... 508
September..... 184	September..... 537
October..... 269	October..... 429
November..... 255	
December..... 310	
1906.	
January..... 280	

AFTERNOON SESSION.

The CHAIRMAN. Now, Senator, we will take up the examination of the Department of Revenue and the Postal Department, and hear the gentlemen who were here this forenoon from your department. But first I want to ask you a question concerning an item on page 19 of the estimate: "For material, supplies, equipment, new buildings, and contingent expenses for account of the government of the Canal Zone." Your estimate for this purpose for the next fiscal year is \$118,500.

Mr. BLACKBURN. Yes, sir.

MATERIAL, SUPPLIES, ETC., FOR GOVERNMENT OF CANAL ZONE.

The CHAIRMAN. There has already been expended for the fiscal year 1907-8, which is the current year, under this same head \$607,200.

Mr. BLACKBURN. For what period is that, Mr. Chairman?

The CHAIRMAN. For the fiscal year 1907-8. That is the expenditure.

Mr. BLACKBURN. The amount of it was what?

The CHAIRMAN. Six hundred and seven thousand two hundred dollars.

Mr. KEIFER. Is it all expended or is it authorized?

The CHAIRMAN. It is authorized and will probably be, at the end of the fiscal year, expended.

Mr. BLACKBURN. I am speaking not from a memorandum before me, but from my best recollection, but I think you will find an approximated surplus of \$242,000 there.

The CHAIRMAN. In that appropriation?

Mr. BLACKBURN. Yes.

Mr. ROGERS. One hundred and twenty-four thousand dollars is included that was not straightened out from a mistake that was made.

The CHAIRMAN. When the appropriation was made at the last session of Congress the estimates were revised by the Commission, and there was \$124,000 which was included originally in this estimate which the Commission subsequently reduced to the extent of \$124,000, and Mr. Rogers wrote me at the last session informing me that he could make that reduction or reduce that appropriation to the extent of \$124,000; but for some reason or other I never received the letter, and the reduction was not made, and the appropriation was made in accordance with the original estimate, and it was therefore greater than it needed to be. I understand there will be a surplus at the end of the fiscal year of \$242,000.

Mr. BLACKBURN. There was, at the end of the last fiscal year, Mr. Chairman. My recollection of that work, of course, was that that was not the reduction suggested by Mr. Rogers, but that, dealing in the aggregate, it came nearer to \$300,000.

The CHAIRMAN. That is true. We made a reduction of \$150,000.

Mr. BLACKBURN. But Congress did not see fit to adopt his suggestion by probably \$200,000 in round numbers. In other words, Congress appropriated in round numbers \$200,000 more than Mr. Rogers advised in his counseling of reductions.

Mr. ROGERS. That is on the personnel. This is on materials.

The CHAIRMAN. This is on materials.

Mr. BLACKBURN. Now what is the chairman's question?

The CHAIRMAN. The surplus you now have on hand and will have at the expiration of this fiscal year is due to the fact that I failed to get the information from the Commission that they would need \$125,000 less—

Mr. ROGERS. About that—

The CHAIRMAN. Less than was estimated. I did not get that information; otherwise the appropriation would have been accordingly reduced. Not getting the information, the appropriation was not reduced, and therefore the appropriation was \$125,000 in excess of what the Commission really estimated to be necessary.

Mr. BLACKBURN. My deliberate judgment, Mr. Chairman, is that it was very fortunate that you did not get that information, for if you had got it there would be a deficiency for this year. I will take occasion, Mr. Chairman, to say that my idea is that the estimate may be big, but I do not understand, when I am charged with the submission of an estimate, that it is anything except the best approximate conclusion I can make as to what will probably be needed. I do not understand that an estimate is to be regarded as the exact amount that is to be expended. An estimate is to be submitted, as I understand it, to serve as a guide for the information of those who have the authority to make appropriations, as closely and intelligently as possible to what expenditure is likely to be incurred. I would very much rather have that estimate on a fair margin above the actual expenditure of money than under it or below it, because if below it, it brings the necessity of a deficiency. Now I do not think that in making an estimate a margin ought to be allowed, expecting it to be cut down, nor do I believe, on the other hand, that it ought to be made so conservative as in all probability to involve a deficiency. I think, in other words, that it should be a fair, liberal approximation of what it is believed, from the best information to be had, will actually have to be appropriated for the service. Had the reduction been made, as the chairman indicates it would have been but for the miscarriage of this information, I am satisfied from the present information that we would have been confronted right now with a deficiency.

The CHAIRMAN. I understood you, Senator, that you would have a surplus this year of about \$200,000.

Mr. BLACKBURN. No; I said we had the surplus. I do not think we will have any surplus for the coming year. We had it last year, about \$242,000, but I do not think we are going to have any surplus for the year we are discussing now.

Mr. KEIFER. That surplus of last year is available for this year?

Mr. BLACKBURN. Yes, by special act, and that is all that saved us from a deficiency, in my judgment. But it was known at that time that that surplus would be there, and the bill carried a special provision which protected it from being covered back into the Treasury, as all other surpluses are, and directed its retention for future use. That was an open secret at the time that this bill, the last appropriation bill, was under consideration in your committee.

The CHAIRMAN. What have you expended this money for?

Mr. BLACKBURN. Without trouble I can furnish, Mr. Chairman, a detailed statement—

The CHAIRMAN. Of expenditures that were made under this appropriation?

Mr. BLACKBURN. Yes; showing every penny on every item.

The CHAIRMAN. You have estimated \$118,500 under this head.

Mr. BLACKBURN. That is for material and supplies.

The CHAIRMAN. Only material?

Mr. BLACKBURN. No; materials, supplies, equipment, new buildings, and contingent expenses.

Mr. KEIFER. That covers everything.

Mr. BLACKBURN. I will call your attention, Mr. Chairman, to the fact that our estimates in round numbers are about \$100,000 short of the appropriations actually made by Congress.

The CHAIRMAN. What department of the Civil Government made up this estimate. Senator, of \$118,500?

Mr. BLACKBURN. It was made up in the office of the Executive Secretary.

The CHAIRMAN. The Executive Secretary is not here?

Mr. BLACKBURN. No; he is in the States.

The CHAIRMAN. Who in your department would have the most intimate knowledge concerning the estimates, and what they are proposed to do?

Mr. BLACKBURN. I have here with me, before the committee now, Mr. Chairman, the gentlemen who, I am sure, can furnish all the information needed in detail. For instance, here is Mr. Cooke, who represents the aggregate of bureaus and divisions, as I tried to explain this morning; all the collection of the internal revenue of the Zone, all the customs collections, all the postal service, all of the land rents, all of the collections upon franchises and liquor licenses, and so forth. All of those are in that one bureau or division. Then here is the Superintendent of Public Works, and here is the Chief of Police. Here is the superintendent of the school system, and here I have with me the Acting Executive Secretary, who in the last two months, during the Executive Secretary's absence on leave, has been acting in his stead.

LEGAL DEPARTMENT.

It may be well, Mr. Chairman, for me to ask the attention of the committee, as maybe some of them have not had their attention called to the fact, that there is another separate and independent department in the government of the Zone which very naturally, in the absence of attention being called to it, you would not consider in connection with or as part of the Department of Civil Administration, if I may term it such, and that is the Legal Department. That is a separate, independent department in the Zone government, created on the 17th of November last, of which Mr. Rogers is the head. That is as much an independent, separate department of the government as any other of its coordinate branches. That is now no longer a part of the department with which I am identified.

The CHAIRMAN. What jurisdiction has that department?

Mr. BLACKBURN. That is a question that I can not answer, Mr. Chairman, nor do I believe that anybody can. Before I left Washington I insisted with the Secretary of War that he should furnish me with a chart or delimitation pointing out the duties, so that I

might know where the one began and the other ended; but I have not as yet been furnished with the information.

Mr. MADDEN. He probably thought you would not want to sail by night.

Mr. BLACKBURN. There is no impinging or clashing of functions. But that Legal Department consists of the General Counsel, Mr. Rogers, and the local attorney on the Zone, who is charged with all legal matters affecting the Isthmian Canal Commission, whether on the Zone or elsewhere, and all legal affairs of the Panama Railroad Company on the Zone, not in the States, and also of a special adviser to the Isthmian Canal Commission, both of these officers to be appointed by the General Counsel with the approval of the Chairman of the Commission.

Now, since the organization of that Legal Department I do not understand but that, and in the absence of any definition being given me to the contrary I hold that, the only legal machinery connected with my department of the government here is the Prosecuting Attorney's Office and the Police Department, the two pieces of machinery inseparable from the maintenance of order and the enforcement of law.

Mr. KEIFER. Does not a judiciary come in, too?

Mr. BLACKBURN. No; except that we have two benches here, a bench of Circuit Judges, three in number, who sitting en banc constitute the supreme court of the Zone, and then we have a bench of what is known as the District Judges, five in number, who took the place of the mayoralties under the old municipalities. They represent in point of jurisdiction and power and duty and scope of authority practically what we are in the habit of denominating as justices of the peace or county court members in the States. Those are appointed by the Governor, those five District Judges, and they hold their appointment from him. The Prosecuting Attorney, the law provides, shall be appointed by the Governor. That is the situation as to the legal machinery here. As I stated to the Committee this morning, originally this department was known as the Department of Civil Government. It was afterwards the Department of Law and Sanitation. After the separation of the Sanitary Department it became known as the Department of Law and Government. After the transfer of Governor Magoon from the Zone to Cuba I do not think it had any designation or title, nor do I think it found any until the 9th of May last, when the Chairman, Colonel Goethals, issued the Executive Order under the instructions of the Secretary of War, devolving upon me the duties which the Executive Order issued by the Secretary a month before had devolved upon him; and there for the first time appears its present designation as the Department of Civil Administration. That, I think, will give you something of a correct idea of the present status.

The CHAIRMAN. Now is there anything further, Senator, in regard to the estimates that you want to speak of? If not, we will call Mr. Cooke and the heads of your several departments for the details.

Mr. BLACKBURN. I think that would be much better, Mr. Chairman, because these gentlemen have long been identified with the several divisions, and have been holding their places now for several years, and are thoroughly familiar with the details. There is nothing I wanted to add, Mr. Chairman, except again to invite the attention

of the committee to the fact that the estimates in bulk as at present submitted are in round numbers about \$100,000 short of the appropriations actually made by the Congress.

Mr. TAYLOR. You mean for last year?

Mr. BLACKBURN. For the current year.

Mr. KEIFER. Have you a deficiency estimate there for this year?

Mr. BLACKBURN. No, sir; and we are not going to have any, but it is because of that surplus.

The following document was subsequently transmitted to Mr. Blackburn:

ISTHMIAN CANAL COMMISSION,
CANAL ZONE, ISTHMIAN PANAMA,
Ancon, November 20, 1907.

SIR: Agreeably to your request at the hearings before the subcommittee of the House Committee on Appropriations at Ancon, November 12, I inclose herewith a statement showing the number of absentees from drills of the volunteer fire companies in the Canal Zone during the months of August, September, and October. You will note that there were, during this period, 75 company drills, from which a total of 429 men were absent. As each company has a membership of 20 men, the percentage of absentees at each drill averages 28.5 per cent.

Very respectfully,

JO. C. S. BLACKBURN,
Head of Department of Civil Administration.

Hon. J. A. TAWNEY,
Chairman House Committee on Appropriations,
Washington, D. C.

List showing the number of absentees from volunteer fire department drills for the months of August, September, and October.

ANCON.		EMPIRE.	
		[Company 1.]	
August 10.....	3	August 10.....	2
August 24.....	3	August 24.....	1
September 7.....	0	September 4.....	8
September 21.....	4	September 18.....	6
October 5.....	4	October 12.....	8
October 19.....	2	October 26.....	3
		[Company 2.]	
GORGONA.			
[Company 1.]			
August 10.....	9	August 7.....	5
August 24.....	12	August 21.....	5
September 14.....	9	September 7.....	5
September 28.....	6	September 28.....	2
October 12.....	8	October 16.....	10
October 26.....	5	October 30.....	2
[Company 2.]		CULEBRA.	
		[Company 1.]	
August 10.....	6	August 7.....	(*)
August 24.....	12	August 21.....	3
September 14.....	6	September 5.....	5
September 28.....	9	September 18.....	2
October 12.....	6	October 2.....	8
October 26.....	3	October 16.....	8
[Company 3.]		October 30.....	7
		[Company 2.]	
August 10.....	5	August 5.....	6
August 24.....	9	August 19.....	5
September 14.....	7	September 16.....	8
September 28.....	7	October 7.....	8
October 12.....	6	October 28.....	4
October 26.....	3		

* No drill.

List showing the number of absentees from volunteer fire department drills, etc.—Continued.

LA BOCA.		PEDRO MIGUEL.	
[Company 1.]		August 8.....	5
August 8.....	18	August 22.....	8
August 22.....	4	September 22.....	6
September 28.....	4	October 17.....	5
October 8.....	10	GATUN.	
October 22.....	6	August 7.....	3
[Company 2.]		August 21.....	6
August 15.....	19	September 4.....	2
August 28.....	4	September 21.....	2
September 5.....	3	October 2.....	6
September 21.....	4	October 16.....	5
October 10.....	10	LAS CASCADAS.	
October 24.....	9	October 12.....	9
PARAISO.		October 26.....	8
August 6.....	6	TABERNILLA.	
September 21.....	0	No reports on file.	
October 15.....	6	COBOZAL.	
October 29.....	1	No reports on file.	

STATEMENT OF MR. TOM M. COOKE, CHIEF OF DIVISION OF POSTS, CUSTOMS, AND REVENUES, DEPARTMENT OF CIVIL ADMINISTRATION.

The CHAIRMAN. Mr. Cooke, what is your position in connection with the civil government?

Mr. COOKE. My title is the Collector of Revenues.

The CHAIRMAN. What is the scope and jurisdiction of your office?

DUTIES OUTLINED.

Mr. COOKE. By law I am also Collector of Customs of the Zone, both ports, the Pacific and Atlantic ports. I am Director of Posts also, and the Collector of Internal Revenue, and by law also the Administrator of Estates. I have had added to that also, by order of the governor, the administration of the lands and buildings, and later on, after the abolishment of the municipalities, the administrative districts. The Zone was divided into four administrative districts in lieu of the municipal governments, and the municipal districts were added to the Department of Revenue. They have to do with the collection of the ordinary taxes and licenses of a municipality.

The CHAIRMAN. Now will you, for the information of the committee, give us briefly an outline of the scope of the present government, its different departments, and how they are administered?

Mr. COOKE. Of the civil government here?

The CHAIRMAN. Yes; under the existing Executive Order.

Mr. COOKE. Well, under the existing Executive Order, the Department of Civil Administration, having its own office, with an Executive Secretary, performs the duties of a governor. In fact, the Commissioner who was detailed as the head of the department of Civil Administration took up the work, and, as I presume, is performing the same duties that Governor Magoon performed, and Governor

Davis, who preceded Governor Magoon. To that extent the Commissioner would seem to be the Governor of the Canal Zone, and would have to do with whatever civil government exists here. The civil government exists by reason of our courts and police system. It did exist with our municipalities, and now it comprises the entire organization of a State government covering the Canal Zone, 10 miles wide by 47 miles long.

The CHAIRMAN. From whom do the heads of the different departments receive and accept their instructions—the Executive Clerk or the Governor?

Mr. COOKE. I receive my instructions from the governor, now called the head of the Department of Civil Administration.

The CHAIRMAN. Is that true of all the other department heads?

Mr. COOKE. Yes; that is true of all the others. The Chief of Police, the Superintendent of Public Works, the Superintendent of Schools, the chief of the Fire Department, all report to and receive instructions from the Governor.

The CHAIRMAN. What proportion of the time of clerks and employees of the civil department in the civil government is consumed in connection with the business incident to our relation with the Panamanian Government in Panama and Colon?

Mr. COOKE. That would be fairly difficult to answer, what proportion. But it is a fact that a portion of each day is devoted to that. The superintendents spend a certain time each day with the Governor, going over the details of matters that he presents to them.

The CHAIRMAN. Is it not a fact, under the present system, that while we legally and nominally have no authority whatever in Panama or Colon, yet we are practically administering the municipal governments of both cities?

Mr. COOKE. No; I do not think that is true, except as to the health conditions and sanitation of the cities. Our health officer has absolute control of the health, both in Panama and Colon.

The CHAIRMAN. How is the health work superintended?

Mr. COOKE. By the Superintendent of Water, a Commission employee, one of the division heads of the department of Government.

FIRE PROTECTION IN PANAMA.

The CHAIRMAN. How does the fire department in Panama, in efficiency, compare with our Fire Department?

Mr. COOKE. It does not compare with it. Of course, it is just what you would find in an ordinary Central American country. Practically, it does not afford any protection at all.

The CHAIRMAN. So far as the fire protection is concerned in the city of Panama, we give them that protection, don't we, to the extent that when there is a fire they generally call on us and we respond?

Mr. COOKE. Yes; unless our own property is threatened.

Mr. BLACKBURN. I wish to say that our Fire Department answers promptly every fire signal that is given in the cities of Panama and Colon, but when the Panamanian firemen appear on the scene they are there to be employed only subject to the control and direction of the chief of their own fire department, who has any number of firemen, because the police force constitutes both the fire department and the

standing army of the Republic of Panama, and it is used as an inter-convertible term, and there are about 900 of them. [Laughter].

Mr. COOKE. They have recently purchased some equipment and have got themselves into condition to fight fire.

The CHAIRMAN. To what extent do we police the cities of Panama and Colon?

Mr. COOKE. None at all.

The CHAIRMAN. Do we maintain any police officers there?

Mr. COOKE. No, sir.

Mr. BLACKBURN. We maintain two men by and with the permission of the Secretary of State, and those two men have been commissioned as honorary members of the Panama police force in order to give them authority inside the proper lines of the Panama Railroad Company.

Mr. COOKE. I believe they have a station over at the Colon Hospital, which is on Panamanian territory.

The CHAIRMAN. You have also charge of the collection of the revenues?

Mr. COOKE. Yes.

REVENUES OF THE ZONE AND THEIR SOURCES.

The CHAIRMAN. State what the revenues of the Canal Zone consist of and from what sources they are derived.

Mr. COOKE. In the first place, those revenues consist in part of taxes, of which I have a printed list and can give you a number of copies.

The CHAIRMAN. The tax law is primarily in the Zone by what authority?

Mr. COOKE. It is by Executive Order.

The CHAIRMAN. You mean excise taxes and land taxes.

Mr. COOKE. Land taxes as well as personal-property taxes; licenses to do business, to run a cart, to conduct a billiard table or a dance hall, and soda fountain licenses. There are 34 saloons in the Canal Zone. They pay \$1,200 per annum, gold. Then we have a distillation tax. There are about 11 distilleries of rum. They make rum from sugar cane here, and we are using for the collection of that tax the law that we found in existence when we came here, and there being no other enactment it is presumably in effect under the President's proclamation to the effect that in the absence of new laws the old laws would be effective to which the people have been accustomed.

The CHAIRMAN. What is that tax on rum?

Mr. COOKE. They pay \$12 per liter capacity on the distillery per month.

The CHAIRMAN. Reducing that to barrels, what would it be?

Mr. COOKE. I have never had that, but I can take it and give you a statement of it. It does not amount to much per gallon. It is a light tax.

Mr. MADDEN. How many liters in a gallon? Are there 2½ liters in a gallon?

Mr. COOKE. Yes; it figures out to about 20 cents a gallon.

Mr. MADDEN. How much is it a liter?

Mr. COOKE. The Panamanian distillation law taxes the capacity of the distilling apparatus which is used, and the charge is made in conformity with their laws. Then we have the sale of postage stamps and the fees of money orders.

The CHAIRMAN. Have you a statement showing the receipts from license taxes, licenses granted to distilleries, and licenses granted to saloons?

Mr. COOKE. Yes, sir.

The CHAIRMAN. And other license taxes?

Mr. COOKE. Yes, sir; and also the postage sales.

The CHAIRMAN. Will you please give it to the stenographer if you have it there?

Mr. COOKE. I can put it in shape and hand it to him to-morrow. I have it in the shape of a memorandum here.

The CHAIRMAN. What are the total revenues?

Mr. COOKE. We get \$40,800 a year from the saloons, whatever that would amount to. I think that is about right. The distillation tax runs about \$9,000 or \$10,000 a year, or \$900 a month. From the district collectors I have had about \$9,000 each per month. I have had charge of the district tax collectors since April, and since that time I believe they have collected at the rate of about \$9,000 a month. They collected \$60,024.63 since April 16 to October 31.

The CHAIRMAN. District tax collectors?

Mr. COOKE. Yes, sir. That is the administrative districts. That is license fees.

The CHAIRMAN. Is any part of the saloon or distillation tax included in that?

Mr. COOKE. No, sir.

The CHAIRMAN. Will you state more in detail what these taxes, collected by the district tax collectors, are, which aggregate \$60,000? What do they consist of?

Mr. COOKE. Well, there is a land tax in the first place.

The CHAIRMAN. What does it amount to?

Mr. COOKE. Five per cent. I believe the recent order is a tax equal to 5 per cent of the rental value of the land or buildings, or what would reasonably be concluded to be a proper rental value.

The CHAIRMAN. Are these buildings owned by the Government of the United States?

Mr. COOKE. No, sir; they are buildings built either upon land leased or owned by persons in the Canal Zone. They may lease a piece of land and build on it—lease it either from the Commission or the Panama Railroad Company.

The CHAIRMAN. What is the character of the land? Is it agricultural land?

Mr. COOKE. Agricultural land. In the agricultural land tax we count in fences and clearings as improvements. Then we have a tax, a license fee, for running a coach or cart, a license fee for running a billiard room, and license for bottlers, except that we do not charge a bottler who does not exclusively handle food products. Then there is a license fee for hurdy-gurdies and circuses, and then there is a slaughter tax.

The CHAIRMAN. Is there any slaughtering done by individuals in the Canal Zone proper?

Mr. COOKE. Oh, yes; nearly every municipal district owns a slaughterhouse, and we fix a stipend of so much for a cow or steer or sheep or hog. In the old days each municipality or administrative district owned a market house, and now we gather revenue from the rent of the market houses. These are kept clean and in sanitary condition by the Commission.

The CHAIRMAN. In what places on the Zone are the market houses kept up?

Mr. COOKE. Cristobal, Gorgona, and Empire.

The CHAIRMAN. Do we tax those thatched huts that we see along the line of the Canal?

Mr. COOKE. That is the intention, I believe, of the order. I do not see any way out of it. The law says you shall tax what seems to be 5 per cent of the rental value of the property. Is not that the truth, Mr. Rogers?

Mr. ROGERS. Yes; but the law was aimed largely at the more important buildings. In cases of the kind referred to, the tax would not amount to anything.

Mr. KEIFER. Do we sell any land and convey it in fee?

Mr. COOKE. No, sir; we do not. Under certain conditions we have leased agricultural land here at a rental value of \$3 per year per hectare, a hectare being two and two-fifths acres. Every lease contains a clause which permits it to be canceled by the Government without any indemnity or compensation.

Mr. BLACKBURN. For a short period.

Mr. KEIFER. Then there are no long leases?

Mr. COOKE. No, sir.

Mr. BLACKBURN. In that connection it might be well for me to say that I had applications laid before me by American companies for leases of land in large quantities in perpetuity, with a view to prospecting for agricultural as well as mineral purposes——

Mr. KEIFER. And for timber cutting?

Mr. BLACKBURN. Yes. I have declined, upon the ground that there was no authority vested in any official upon the Zone to issue such leases. Neither the land laws nor the mineral laws of the United States have ever been made applicable to the Zone.

Mr. GILLET. There is no tax on the railroad company, I suppose, is there?

Mr. COOKE. No, sir; no tax on any Government property.

The CHAIRMAN. Now, you have spoken of the saloon tax, and the distillery tax, and the land and other taxes collected by the district collectors. Are there any other sources of revenue?

POSTAGE SALES.

Mr. COOKE. The postage sales.

The CHAIRMAN. What is the revenue derived from that source?

Mr. COOKE. Well, the postage sales for the last month, the month of October, amounted to something over \$7,000. It has been on the increase right along. The sales for the last half of 1906 over the comparative statement of the first half of 1906 show an increase of 24 per cent. The first half of 1907, as compared with the last half of 1906, shows an increase of 34 per cent, and the four months of the present semiannual period just passed, up to October 31, figuring the average increase, show an approximate increase of 14 per cent for

those months; so that there is seen to be a steady growth of 3 or 4 or 5 per cent a month.

The CHAIRMAN. How much of that revenue goes into the treasury of the Canal Zone government?

Mr. COOKE. It all goes into the treasury. It is used to defray the expenses of the postal system; that is, the postal expenses are paid out of the revenues of the post-office in so far as they are able to pay them. The balance is paid out of the appropriations to construct the canal.

The CHAIRMAN. Have you any other sources of revenue?

Mr. COOKE. Yes; the Union Oil Company pays \$6,000 for the franchise to construct a pipe line. They pay me \$500 a month.

Mr. BURLERSON. They pay it monthly?

MONEY-ORDER SALES.

Mr. COOKE. Yes. I present a bill to them, and they have not refused to pay it yet in ordinary collections. Then we have the money-order fees, Mr. Chairman, that amount to about \$1,500 a month, to-day, now; but those will increase. Taking the comparative statement of the second half of 1906, we find that in the semiannual period of 1906 we sold \$819,193 in money orders, and in the first semiannual period of 1907 we sold \$1,499,771, an increase of over 81 per cent. For the four months already passed, up to October 31, for the semiannual period of 1907, we sold \$1,344,023, and for those four months there was a proportionate increase of 34 per cent over the semiannual period just passed, which showed an increase of 81 per cent. I rather anticipate that this month the money orders will run over \$400,000.

The CHAIRMAN. What would that net the Government?

Mr. COOKE. The fees on that would be close to \$2,000 a month, or \$24,000 a year, which would be used, I suppose, to pay as far as possible the expenses of the postal system.

The CHAIRMAN. That revenue is derived from the sale of postage stamps and the issuing of money orders?

Mr. COOKE. Yes, sir.

The CHAIRMAN. Are there any other sources of revenue?

Mr. COOKE. There are some water rents in the Canal Zone, in the villages along the line of the railroad. They tap the main, and sometimes put a meter in a building, or else charge a fixed sum. Those rents are collected by the Collector of Revenues. The water rents in Panama and Colon are collected by the Water Commissioner.

The CHAIRMAN. Give us the aggregate of revenue for this year, ending last July.

Mr. COOKE. About a quarter of a million dollars.

The CHAIRMAN. Two hundred and fifty thousand dollars.

DISPOSITION OF THE REVENUES.

Mr. KEIFER. Ask him what was done with it.

The CHAIRMAN. Prior to July 1, what has become of the receipts? Were they turned into the Treasury of the United States as miscellaneous receipts?

Mr. COOKE. No; I deposit my receipts with the Treasurer of the Canal Zone.

The CHAIRMAN. Did you do that prior to July last?

Mr. COOKE. The postal receipts went to the Treasury. They are now used in accordance with the rider on the last appropriation bill; they are used as far as possible towards the payment of the postal expenses.

Mr. BLACKBURN. Those funds are expended in the building of roads, the making of trails, the construction of bridges and culverts, the building of slaughterhouses, and the expenses of the Zone department proper.

Mr. TAYLOR. How about public schools?

Mr. BLACKBURN. We maintain those. They have two funds appropriated exclusively to the maintenance of schools. One is the tax paid by this California oil company upon its franchise, which is only about \$6,000, and one-half of the land tax. Those two are constituted sacred funds for the maintenance of the school system.

Mr. KEIFER. The balance comes out of this?

Mr. BLACKBURN. Yes; this aggregation of revenues of which Mr. Cooke has spoken.

The CHAIRMAN. You also collected the court fees? Are they turned in to you?

Mr. COOKE. Of the district courts?

The CHAIRMAN. Yes.

Mr. COOKE. I do not collect them. The judges inflict them and collect them, and remit them direct to the Treasurer, making their financial reports to me. I have nothing to do with the Judges officially except as to their collection. The law provides that I shall keep an account with every administrative district, and an account with the Zone collections, so that estimates of public work of that character shall be taken from the balance held and shown by the books of the collectors of revenue. As to what is done with the money, I presume the Treasurer ought to be advised. We have not seen the report of the Treasurer for three months concerning the disbursement of Zone revenues.

The CHAIRMAN. You say that prior to July 1 last the receipts of the Canal Zone government were not turned into the Treasury as miscellaneous receipts?

Mr. COOKE. Yes, sir. The postal receipts were.

The CHAIRMAN. I know, but were no other receipts turned into the Federal Treasury?

Mr. COOKE. The rent and all those land-lease revenues under act of Congress were turned into the Treasury as miscellaneous receipts.

The CHAIRMAN. License taxes and excise tax?

Mr. COOKE. No, sir. They were at that time collected by the municipalities. We did not collect those license taxes, fees for running dance halls, and coach hire, etc. That tax was collected by the municipality, by a municipal treasurer. They had their own system of local taxation there. Now the amount on the land as well as any public machinery that was down here was all covered in as miscellaneous collections into the United States Treasury.

ESTIMATES OF DEPARTMENT OF CIVIL ADMINISTRATION.

The CHAIRMAN. In making up your estimates for expenditures under the Civil Administration did you take into consideration the revenues that would be available for expenditure during that fiscal year?

Mr. COOKE. No. I will be frank about that. I took into consideration what I thought the department would need, and asked for it, both on salaries and on materials and supplies. I have no salaried men, as shown in this printed statement, here at all. It provides for two clerks at \$2,100 and six at \$1,800. My clerks are not drawing that to-day. But if the work of the Department of Revenues keeps up with the percentage of increase and responsibility with which it is now increasing, I wanted to be in position to have a brighter kind of men. I have not a \$2,100 clerk.

The CHAIRMAN. If this Committee should recommend and Congress should appropriate the amount which you have estimated, you would have a surplus at the end of the fiscal year to the extent of the revenues you collected.

Mr. COOKE. Wait a moment. The revenues are deducted from the estimate.

The CHAIRMAN. I understood you to say you did not take into consideration the revenues when you made your estimate.

Mr. COOKE. When I make my estimate I want so many thousand dollars. I want two or three hundred thousand dollars, say. Now then, when you commence to appropriate this money, I simply make an estimate and submit it to my department, to the effect that the Department of Revenue will need so many thousand dollars.

The CHAIRMAN. That is why I wanted to get at your revenues, in order to find out how much to deduct from your estimates. Would it not be a better plan for you to estimate the revenues and make your own deductions?

Mr. COOKE. You will notice on page 19 that the tabulated estimate of appropriations there is \$179,480, less estimated revenues from the postal service, \$75,000.

The CHAIRMAN. But that goes into the Treasury; you do not have it.

Mr. COOKE. Not now. By a rider on the last appropriation bill you permitted that to be applied to the expenses of the postal system, so far as it would go.

Mr. KEIFER. That is for this fiscal year, the present one?

Mr. COOKE. Yes.

The CHAIRMAN. Well, that is \$75,000. According to your statement there would be \$175,000 additional revenue.

Mr. KEIFER. You do not ask for \$250,000.

Mr. COOKE. I ask for \$179,000.

Mr. KEIFER. What you really asked for was \$104,000 over and above the estimated revenues.

Mr. COOKE. The revenues of the Post-Office Department—the balance of that money is collected from these different sources and is deposited with the Treasurer of the Canal Zone.

Mr. TAYLOR. There is no such officer, is there?

Mr. COOKE. Well, by the laws of the Canal Zone the Disbursing Officer of the Isthmian Canal Commission performs that duty.

Mr. TAYLOR. You mean you deposit it with the Disbursing Officer?

Mr. COOKE. I do it under his title of Treasurer of the Canal Zone.

The CHAIRMAN. Here is the law, Mr. Cooke, under which you are operating. These revenues should be applied to all of the things you have estimated for, except \$10,000, which is deducted for the maintenance of the public schools. The law reads:

All funds collected by the government of the Canal Zone from rentals of public lands and buildings in the Canal Zone and the cities of Panama and Colon, and from the Zone postal service and from court fees and fines, and collected or raised by taxation in whatsoever form under the laws of the government of the Canal Zone, are hereby appropriated until and including June thirtieth, nineteen hundred and eight, as follows: The revenues derived from the postal service to the maintenance of that service; the remaining revenues, after setting aside a miscellaneous and contingent fund of ten thousand dollars, to the maintenance of the public school system in the Zone, and to public improvements within the Zone. A detailed statement of all receipts and expenditures under this paragraph shall be submitted to Congress after the close of the fiscal year nineteen hundred and eight.

Mr. COOKE. That is just what is done with it.

The CHAIRMAN. Well, you have \$250,000 of revenue that is available for this purpose. You have made a deduction of \$75,000 from your estimate, which is the amount estimated for the postal receipts, so that you will have \$250,000 less \$75,000 and less \$10,000, or in all less \$85,000, that would be available for the purposes for which you have estimated for the next fiscal year.

Mr. COOKE. There is no estimate in here for schools or public works?

The CHAIRMAN. There is for public works.

Mr. KEIFER. The witness said \$179,000 was his estimate.

Mr. COOKE. That was my estimate in the bill. The \$250,000 that the Chairman refers to is collections that I make.

Mr. KEIFER. \$179,480 is your estimate, subject to a reduction of \$75,000, as an estimate of the collections you will have available to meet that?

Mr. COOKE. Yes. I do not find in this appropriation bill or this Book of Estimates any estimates for roads, trails, public improvements, bridges, or schools in the Zone. They are only referred to in the latter part of that provision there as receiving \$10,000.

Mr. TAYLOR. Don't you keep account of any expenses for roads?

Mr. COOKE. The auditor keeps all those accounts.

SCHOOLS AND PUBLIC IMPROVEMENTS.

Mr. GILLETT. I suppose, you know, Mr. Cooke, whether any money is expended for schools or public improvements?

Mr. COOKE. I presume I should know; but as I say, I have not seen any report of the auditor or Treasurer concerning the expenditures of the Zone for three months.

Mr. GILLETT. Do you know of any revenues other than Canal Zone revenues expended on roads or schools?

Mr. BAXTER. We receive monthly statements from the Examiner of Accounts, showing all money expended for schools or public works or

for any other purpose which Congress has authorized from the Zone funds.

Mr. GILLETT. You do not catch my point. I mean, is any money expended on those outside revenues from the Zone?

Mr. BAXTER. There is not.

Mr. GILLETT. There is none appropriated by Congress?

Mr. BAXTER. None whatever.

Mr. TAYLOR. As I understand you, Mr. Cooke, you turn over the money as you receive it to the Disbursing Officer of the Zone as Treasurer, and that ends your connection with it; you have nothing to do with the disbursement?

Mr. COOKE. Nothing whatever.

Mr. TAYLOR. Has the Department of Civil Administration anything to do with the disbursement of that fund?

Mr. COOKE. They have all to do with it. The vouchers for these disbursements are sent in by the different bureaus using or disbursing it for the approval of the Governor of the Canal Zone. The department of public works, if they build a slaughterhouse, do it under the direction of the Director of Public Works.

Mr. TAYLOR. Who has charge of the school business?

Mr. COOKE. The Governor. He has a School Superintendent.

Mr. TAYLOR. Is he in the Governor's office proper, or in one of the divisions?

Mr. COOKE. He is in one of the divisions in the Department of Civil Administration.

Mr. BLACKBURN. He is one of the seven.

The CHAIRMAN. Mr. Cooke, perhaps you are not aware of the fact that this law appropriating the revenues of the Canal Zone for the purposes you have mentioned is no longer in existence, or rather will not be during the year for which we are now considering estimates of appropriation. The provision will expire June 30, 1908, with the expiration of this law covering the present fiscal year. It was intended to be applicable to only one year. Now the reenactment making it applicable to the fiscal year 1909 will have to be made, or you will have to put in an estimate for the postal revenues and everything else for which the civil administration will require money during the next fiscal year —

Mr. BURLISON. Including schools and public improvements as well as the postal service.

Mr. COOKE. Does not this estimate that we have in here, for instance, for the Department of Revenues apply to the fiscal year 1909?

The CHAIRMAN. Yes.

Mr. KEIFER. It is this fiscal year.

The CHAIRMAN. It is for the year ending June 30, 1909.

Mr. COOKE. We have our money up to June 30, 1908.

The CHAIRMAN. If you intend to do anything with the proceeds of the revenue collected during the fiscal year 1909, beginning July 1, 1908, you will have to submit an estimate to secure an appropriation for that work or secure the reenactment of this provision. I simply call your attention to that because the law expires June 30, 1908, so that you will either have to have a law reappropriating it or have some other provision made.

Mr. COOKE. Otherwise it would simply heap up down here?

The CHAIRMAN. No; it would go into the Treasury of the United States, into the miscellaneous fund.

Mr. COOKE. So far as that portion of it is used to pay the expenses of the postal system, it might just as well be there as anywhere else, inasmuch as you gentlemen pay it anyway out of the United States funds.

ZONE POSTAGE STAMPS PURCHASED FROM THE PANAMANIAN REPUBLIC.

The CHAIRMAN. As to the postal system, how much is paid to the Panamanian Government?

Mr. COOKE. We buy our postage stamps from the Panamanian Government and pay the Panamanian Government for those postage stamps 40 per cent of their face value.

The CHAIRMAN. Why do we buy our postage stamps from the Panamanian Government?

Mr. COOKE. Under an agreement entered into in December, 1904, by the Secretary of War, which provides that "the authorities of the Canal Zone shall purchase from the Republic of Panama such stamps as the authorities of the Canal Zone desire to use in the Canal Zone at forty per centum of their face value."

The CHAIRMAN. The date of that agreement was when, did you say?

Mr. COOKE. It was dated, I think, on the 7th day of December. It took effect on the 12th day of December, 1904. That was Secretary Taft's first visit.

Mr. ROGERS. That is the *modus vivendi*.

Mr. KEIFER. I would like to ask if he has in his hand a copy of all that class of agreements?

Mr. COOKE. Yes; that is it [indicating pamphlet].

Mr. KEIFER. I would like to have it handed to the stenographer.

Mr. COOKE. Yes; I will give this copy to the stenographer, because in this same agreement is the provision that Colonel Gorgas spoke of this morning. It appears as section 11, regarding the conduct of the hospitals.

Following is the document referred to:

[Executive order dated December 3, 1904, issued by the Secretary of War of the United States of America, and supplementary order dated December 6, 1904.]

PANAMA, December 3, 1904.

YOUR EXCELLENCY: After very full conferences with you and your advisers, I have drafted an Executive Order, which I have the authority of the President of the United States to sign and put in force and which in its operation and conditions, in complied with, seems to me to offer a solution, honorable and satisfactory to both nations, of the differences between the United States and the Republic of Panama. I enclose a draft of the order. I understand that you and your advisers concur in the wisdom of this solution, but I should be glad to have an expression of your approval of it before formally signing the order and giving it effect. Your Excellency will observe that the order is drawn to take effect on the 12th of December. This delay is for the purpose of giving full publicity to all concerned.

I have the honor to be, with the assurances of my most distinguished consideration, your obedient servant,

WM. H. TAFT, *Secretary of War*.

DR. MANUEL AMADOR GUERRERO,
President of the Republic of Panama, Panama.

EXECUTIVE ORDER OF DECEMBER 3, 1904.

PANAMA, December 3, 1904.

By the direction of the President, it is ordered that, subject to the action of the Fifty-eighth Congress as contemplated by the act of Congress approved April 28, 1904:

SECTION 1. No importations of goods, wares, and merchandise shall be entered at Ancon or Cristobal, the terminal ports of the Canal, except such goods, wares, and merchandise as are described in Article XIII of the treaty between the Republic of Panama and the United States, the ratifications of which were exchanged on the 26th day of February, 1904, and except goods, wares, and merchandise in transit across the Isthmus for a destination without the limits of said Isthmus, and except coal and crude mineral oil for fuel purposes to be sold at Ancon or Cristobal to seagoing vessels; said coal and oil to be admitted to those ports free of duties for said purpose: *Provided, however*, That this order shall be inoperative, first, unless the Republic of Panama shall reduce the ad valorem duty on imported articles described in class 2 of the act of the National Convention of Panama passed July 5th, 1904, and taking effect October 12th, 1904, from fifteen per centum to ten per centum and shall not increase the rates of duty on the imported articles described in the other schedules of said act except on all forms of imported wines, liquors, alcohol, and opium, on which the Republic may fix higher rates; second, unless article 38 of the constitution of the Republic of Panama, as modified by article 146 thereof, shall remain in full force and unchanged, so far as the importation and sale of all kinds of merchandise are concerned; third, unless the consular fees and charges of the Republic of Panama in respect to entry of all vessels and importations into said ports of Panama and Colon shall be reduced to sixty per cent of the rates now in force; and, fourth, unless goods imported into the ports of Panama and Colon consigned to or destined for any part of the Canal Zone shall not be subjected in the Republic of Panama to any other direct or indirect impost or tax whatever.

SEC. 2. In view of the proximity of the port of Ancon to the Port of Panama and of the port of Cristobal to the port of Colon, the proper customs or port official of the Canal Zone shall, when not inconsistent with the interests of the United States, at the instance of the proper authority of the Republic of Panama, permit any vessel entered at or cleared from the ports of Panama and Colon, together with its cargo and passengers, under suitable regulations for the transit of the impored merchandise and passengers to and from the territory of the Republic of Panama, to use and enjoy the dockage and other facilities of the ports of Ancon and Cristobal, respectively, upon payment of proper dockage dues to the owners of said docks: *Provided, however*, That reciprocal privileges as to dockage and other facilities at Panama and Colon, together with suitable arrangement for transit of imported merchandise and passengers to and from the territory of the Canal Zone, shall be granted by the authorities of the Republic of Panama, when not inconsistent with its interests, to any vessel, together with its cargo and passengers entered at or cleared from the ports of Ancon and Cristobal: *Provided, however*, that nothing herein contained shall affect the complete administrative, police, and judicial jurisdiction of the two Governments over their respective ports and harbors, except as hereinafter provided in section 6: *Provided, also*, That vessels entering or clearing at the port of Panama shall have the absolute right freely to anchor and lade and discharge their cargoes by lighterage from and to Panama at the usual anchorage in the neighborhood of the Islands of Perico, Flamenco, Naos, and Culebra, though included in the harbor of Ancon under the provisional delimitation as amended under section 5 hereinafter, and to use the said waters of said harbor for all lawful commercial purposes.

SEC. 3. All manifests and invoices and other documents in respect to vessels or cargoes cleared or consigned for or from the ports of Panama and Colon shall, as heretofore, be made by the officials of the Republic of Panama.

All manifests, invoices, and other documents in respect to the vessels and cargoes cleared or consigned for or from the ports of Ancon or Cristobal shall be made by officials of the United States.

SEC. 4. No import duties, tolls, or charges of any kind whatsoever shall be imposed by the authorities of the Canal Zone upon goods, wares, and merchandise imported or upon persons passing from the territory of the Republic of Panama into the Canal Zone; and section 5 of the Executive Order of June

24th, 1904, providing that duties on importations into the Canal Zone are to be levied in conformity with such duties as Congress has imposed upon foreign merchandise imported into ports of the United States, is hereby revoked; but this order shall be inoperative unless the authorities of the Republic of Panama shall grant by proper order reciprocal free importation of goods, wares, and merchandise and free passage of persons from the territory of the Canal Zone into that of the Republic of Panama.

SEC. 5. The provisions of this order also shall not be operative except upon the condition that the delimitation of the cities and harbors of Colon and Panama, signed on the 15th day of June, 1904, by the proper representatives of the governments of the Republic of Panama and of the Canal Zone, shall be provisionally in force, and while the same shall remain in force with the consent of both parties thereto the provisional delimitation shall include not only the terms set forth in the writing thereof, but also the following, viz: That the harbor of Panama shall include the maritime waters in front of said city to the south and east thereof, extending three marine miles from mean low water mark, except the maritime waters lying westerly of a line drawn from a stake or post set on Punta Mala through the middle island of the three islands known as Las Tres Hermanas and extending three marine miles from mean low water mark on Punta Mala, which waters shall be considered in the harbor of Ancon.

SEC. 6. This order also shall be inoperative unless the proper governmental authorities of the Republic of Panama shall grant power to the authorities of the Canal Zone to exercise immediate and complete jurisdiction in matters of sanitation and quarantine in the maritime waters of the ports of Panama and Colon.

SEC. 7. The Executive Order of June 24th, 1904, concerning the establishment of post-offices and postal service in the Canal Zone is modified and supplemented by the following provisions:

All mail matter carried in the territory of the Canal Zone, to or through the Republic of Panama, to the United States and to foreign countries shall bear the stamps of the Republic of Panama properly crossed by a printed mark of the Canal Zone Government, and at rates the same as those imposed by the Government of the United States upon its domestic and foreign mail matter, exactly as if the United States and the Republic of Panama for this purpose were common territory. The authorities of the Canal Zone shall purchase from the Republic of Panama such stamps as the authorities of the Canal Zone desire to use in the Canal Zone at forty per centum of their face value; but this order shall be inoperative unless the proper authorities of the Republic of Panama shall by suitable arrangement with the postal authorities of the United States provide for the transportation of mail matter between post-offices on the Isthmus of Panama and post-offices in the United States at the same rates as are now charged for domestic postage in the United States, except all mail matter lawfully franked and enclosed in the so-called penalty envelopes of the United States Government concerning the public business of the United States, which shall be carried free, both by the Governments of Panama and of the Canal Zone; *Provided, however*, That the Zone authorities may, for the purpose of facilitating the transportation of through mail between the Zone and the United States in either direction, enclose such through mail properly stamped or lawfully franked in sealed mail pouches which shall not be opened by the authorities of the Republic of Panama in transit, on condition that the cost of transportation of such mail pouches shall be paid by the Zone Government.

SEC. 8. This order also shall not be operative unless the Currency Agreement made at Washington June 20th, 1904, by the representatives of the Republic of Panama and the Secretary of War of the United States, acting with the approval of the President of the United States, for the establishment of a gold standard of value in the Republic of Panama and proper coinage shall be approved and put into execution by the President of the Republic of Panama, pursuant to the authority conferred upon him by law of the Republic of Panama No. 84, approved June 20th, 1904, and unless the President of the Republic of Panama, in order that the operation of the said currency agreement in securing and maintaining a gold standard of value in the Republic of Panama may not be obstructed thereby, shall, by virtue of his authority conferred by law No. 65, enacted by the National Assembly of Panama on June 6th, 1904, abolish the tax of one per cent on gold coin exported from the Republic of Panama.

SEC. 9. Citizens of the Republic of Panama at any time residing in the Canal Zone shall have, so far as concerns the United States, entire freedom of voting at elections held in the Republic of Panama and its provinces or municipalities, at such places outside of the Canal Zone as may be fixed by the Republic, and under such conditions as the Republic may determine; but nothing herein is to be construed as intending to limit the power of the Republic to exclude or restrict the right of such citizens to vote as it may be deemed judicious.

SEC. 10. The highway extending from the eastern limits of the city of Panama, as fixed in the above-mentioned provisional delimitation agreement of June 15th, 1904, to the point still further to the eastward where the road to the "Savanas" crosses the Zone line (which is five miles to eastward of the center axis of the Canal) shall be repaired and maintained in a serviceable condition at the cost and expense of the authorities of the Canal Zone and also in like manner the said road from the said eastern limits of the city of Panama to the railroad bridge in the city of Panama shall be repaired at the cost of the authorities of the Canal Zone; but this order shall not be operative unless the Republic of Panama shall waive its claim for compensation for the use in perpetuity of the municipal buildings located in the Canal Zone.

SEC. 11. The United States will construct, maintain, and conduct a hospital or hospitals either in the Canal Zone or in the territory of the Republic, at its option, for the treatment of persons insane or afflicted with the disease of leprosy, and the indigent sick, and the United States will accept for treatment therein such persons of said classes as the Republic may request; but this order shall not be operative, unless, first, the Republic of Panama shall furnish without cost the requisite lands for said purposes if the United States shall locate such hospital or hospitals in the territory of the Republic; and second, unless the Republic shall contribute and pay to the United States a reasonable daily per capita charge in respect of each patient entering upon the request of the Republic, to be fixed by the Secretary of War of the United States.

SEC. 12. The operation of this Executive Order and its enforcement by officials of the United States on the one hand, or a compliance with and performance of the conditions of its operation by the Republic of Panama and its officials on the other, shall not be taken as a delimitation, definition, restriction, or restrictive construction of the rights of either party under the treaty between the United States and the Republic of Panama.

This order is to take effect on the 12th day of December, 1904.

WM. H. TAFT,
Secretary of War.

[Translation.]

Republica de Panama.—Poder Ejecutivo Nacional.—Presidencia.—Panama, December 3, 1904.

HON. WILLIAM H. TAFT,
Secretary of War of the United States, at Panama.

SIR: As the embodiment of the conclusions reached by our respective Governments, after the full and satisfactory conferences which have been had between you, myself, and advisers, I have the pleasure to express the concurrence of the Republic in the Executive Order of the Secretary of War made by direction of the President of the United States under date of this the 3d day of December, 1904.

Aside from the wisdom and justice evidenced by this happy solution of the differences between the United States and the Republic of Panama, permit me to express in behalf of the Republic, and of myself and advisers, our gratitude for your gracious visit to Panama and your patient, judicial, and statesmanlike considerations of the subjects involved.

I have the honor to be, my dear Mr. Secretary, and with assurances of my highest esteem,

Sincerely, yours,

M. AMADOR GUERRERO,
President of the Republic of Panama.

SANTIAGO DE LA GUARDIA,
Secretary of Government and Foreign Affairs.

PANAMA, December 6, 1904.

YOUR EXCELLENCY: I inclose herewith a supplementary order, merely explanatory of the one which has already had your concurrence. May I ask that you express a similar concurrence in this?

Very respectfully,

W. H. TAFT,
Secretary of War.

DR. MANUEL AMADOR GUERRERO,
President of the Republic of Panama, Panama.

EXECUTIVE ORDER OF DECEMBER 6TH, 1904, EXPLANATORY OF EXECUTIVE ORDER OF DECEMBER 3RD, 1904.

SECTION I. Consignments of goods, wares, and merchandise which by virtue of Section I of the above-mentioned order of December 3rd, 1904, can not be entered for importation at the ports of Ancon or Cristobal may nevertheless, at the option of the consignor, if accompanied by the proper consular invoices of the consul of the Republic of Panama at the port of consignment, be landed at Ancon or Cristobal, respectively, in transit to any part of the Canal Zone or the Republic, upon payment of the proper duties to the Republic of Panama, under suitable arrangements, similar to those provided for by Section II of said order of December 3rd, 1904.

But such goods, wares, and merchandise not accompanied by consular invoices of the consul of the Republic shall not be permitted to land at Ancon or Cristobal.

SECTION II. The order of December 3rd, 1904, shall be construed to permit free exportation and consignment of goods, wares, and merchandise and free transit of persons and vehicles from the Republic through the Canal Zone and from the terminal ports thereof.

Panama, December 6th, 1904.

By direction of the President.

WM. H. TAFT,
Secretary of War.

[Translation.]

PANAMA, December 6, 1904.

Hon. WM. H. TAFT,

Secretary of War of the United States of America, Presente.

SIR: I have the honor to acknowledge the receipt of your Excellency's letter transmitting the Executive Order of the 6th instant which explains Article I of the order dictated by your Excellency on the 3d of the present month.

I take pleasure in stating to you that I agree with the contents of this new document, and take advantage of the occasion to reiterate my sentiments of high consideration and esteem.

I am, your Excellency's obedient servant,

M. AMADOR GUERRERO,
President of the Republic.

SANTIAGO DE LA GUARDIA,

Secretary of Government and Foreign Relations.

THE CHAIRMAN. So that we are not using United States postage stamps on the Canal Zone?

MR. COOKE. We were using them up to December, 1904, but have not been since then.

THE CHAIRMAN. Prior to December, 1904, we were using United States postage stamps?

MR. COOKE. Yes, sir. We changed the issue of stamps on the morning of the 12th, and used Panamanian postage.

THE CHAIRMAN. What amount in the aggregate do we pay to the Panamanian Government for postage annually?

MR. COOKE. In round numbers possibly \$40,000 a year.

THE CHAIRMAN. How much would that postage cost the Government of the United States if it made its own stamps?

Mr. COOKE. Well, scarcely anything. Nine million postage stamps in denominations of ones, twos, fives, eights, and tens, the face value of \$390,000, would cost in freight and shipment and cartage, laid down at the Administration Building in Panama, \$728 and a fraction, with the additional expense of a surcharge of the words "Canal Zone" on the United States postage stamps, which would add something, of course, to the cost of the work as an additional piece of printing. The value of these stamps sent down at that time was \$390,000 face value, that cost \$720.

The CHAIRMAN. We are using about how many stamps a year, face value?

Mr. COOKE. About \$90,000 or \$100,000. The sale of postage runs between seven and eight thousand dollars a month, and it is on the increase. We will use about \$100,000 worth a year in the coming year.

The CHAIRMAN. Does any of our mail go through the Panamanian post-office?

Mr. COOKE. Not intentionally. It sometimes happens that New York routes the mail down unintentionally to the Republic of Panama. We have 18 post-offices here, and our own postal equipment, and mail is routed direct from New York to Cristobal and across the Isthmus, and we route the mail direct from here and route it to the States and cities.

The CHAIRMAN. Have you an estimate here for the transportation of mail?

Mr. COOKE. There should be. The transportation of mail is \$25,000 on page 20. Mr. Chairman.

The CHAIRMAN. Whom do we pay that to?

Mr. COOKE. The Panama Railroad Steamship Company.

STATIONERY, PRINTING, AND OFFICE SUPPLIES.

The CHAIRMAN. You also have in your division stationery, printing and office supplies, and your estimate is \$13,000.

Mr. COOKE. Yes, sir. That is a very liberal estimate. We did not use more than \$9,000 last year, but I cannot afford to estimate for less money than I may need. Within the past year the Postal Division has shown a progress of over 150 per cent, and it keeps that up right along from 8 to 10 per cent a month, and it necessarily follows that I may need more money.

The CHAIRMAN. Your stationery and printing and office supplies would not necessarily increase in proportion to the postal revenues.

Mr. COOKE. That includes all the blank forms used by the post-office, all the registry forms and record books, and all return receipt cards, of which hundreds of thousands are used.

The CHAIRMAN. You have had considerable experience here in the administration of this department, Mr. Cooke, and I want to ask you if it would not be operated more economically and with equal satisfaction if operated by the Post-Office Department of the United States, furnishing the supplies and everything else?

Mr. COOKE. I have no doubt in the world that the Post-Office Department of the United States could run a better postal system than I could.

The CHAIRMAN. I am not criticising you. I mean, economically?

Mr. COOKE. I do not think they could run it more economically. I have the most underpaid service of clerks in the Canal Zone. I am the only department that has a majority of \$1,200 men.

The CHAIRMAN. They have a very large organization, and a great deal of the work done here by an independent organization necessarily costs the Government more than it would cost if done in connection with the work it is doing otherwise and elsewhere. You said you were printing blanks for registered letters and things of that kind?

Mr. COOKE. That is the stuff we order up there. The major portion of that, \$13,000, will be expended to contractors who have the contract for furnishing postal supplies to the Post Office Department of the United States. Maybe \$15,000 of that may be expended here. When it is necessary to get out a job quickly they cannot furnish me with the printed forms down here at one-fifth of the cost I can get them for in the United States. There they handle them in immense amounts, and here in small amounts.

TRAVELING AND CONTINGENT EXPENSES.

The CHAIRMAN. Who in your department receives the benefit of free transportation over the railroad?

Mr. COOKE. How do you mean that?

The CHAIRMAN. You have an estimate here for traveling, and contingent expenses, \$2,500. That is in the Postal Department.

Mr. COOKE. That is not paid out for the Postal Division. That covers the entire Revenue Department. I have some land agents, tax collectors, who occasionally hire a horse to get into the interior. We do not pay any more railroad fare than our proportion of the lump sum to the Panama Railroad. Everybody rides on the railroad. In this instance it is not considered a bribe.

The CHAIRMAN. That law applies everywhere. A man in the postal service rides free. That is included in the contract for carrying the mails.

Mr. COOKE. Yes, that is included in the contract. That man has his expenses and the hire of a horse all paid. It is not intended to be applied absolutely to the Postal Division. It should be Revenue Department.

The CHAIRMAN. Do you think it is necessary to spend \$74,280 to collect \$250,000?

Mr. COOKE. In this instance it seems to be. I know of a number of custom-houses in the United States that do not take in a cent, and still the Government maintains them as ports of entry.

Mr. BURLESON. There have been vigorous attempts to abolish them, and they would have been abolished but for the objections raised by distinguished individuals.

ADMINISTRATION OF ESTATES.

Mr. COOKE. We get no revenue out of the administration of estates of deceased American citizens who are Canal or railroad employees. We administer on four or five or six of those a month, collect funds and send effects to their widows or legal heirs.

The CHAIRMAN. How do you administer on an estate? Under what law?

Mr. COOKE. A law passed by the Isthmian Canal Commission; Act No. 24 of the Canal Zone laws. You can get a copy of that law.

The CHAIRMAN. Does it apply to all the estates, or is there a limit?

Mr. COOKE. It applies to estates purely personal and where the amount does not exceed \$500.

Mr. KEIFER. Even then, if the courts stepped in, they could supersede you?

Mr. COOKE. Yes. There being no other direct administration, we are authorized to administer. There is no revenue derived from the customs service, and still we maintain a customs service.

The CHAIRMAN. Do you collect any fees as administrator?

Mr. COOKE. No, sir. I am not authorized to make any charge for administration.

The CHAIRMAN. It is purely a gratuity for the survivors of the deceased?

Mr. COOKE. Entirely.

Mr. MANN. There is no charge against their estate at all?

Mr. COOKE. Sometimes when there is a necessity to hire a coach, we pay that coach fare and charge it against the estate. I do not think there is a case where a bill from my department against an estate ever exceeded a dollar.

Mr. GRAFF. Do you report to the Governor?

Mr. COOKE. I report to the department monthly, and make a financial abstract to him.

Mr. TAYLOR. About how many of those estates have you had to settle?

Mr. COOKE. Oh, I expect I have settled 60.

Mr. TAYLOR. What are they worth in the aggregate?

Mr. COOKE. Oh, they run from 5 cents, which is the lowest, as I remember, up to three or four hundred dollars. It involves the time frequently, however, necessary to discover a man's heirs, to discover where a man's mother or sister or relatives may be; and particularly during the period when we had a few deaths from yellow fever the correspondence was voluminous. Somebody had to do it.

Mr. TAYLOR. Don't you think you could make some charge?

Mr. COOKE. No, sir. I think the Commission down here owes it as a duty to the estate.

Mr. GRAFF. The law forces you to do it?

Mr. COOKE. Yes, the law authorizes it, approved by the President.

Mr. MANN. Is this done through a court?

Mr. COOKE. Not at all.

Mr. MANN. It is not a court proceeding?

Mr. COOKE. Not at all.

Mr. MANN. Suppose a man owns property?

Mr. COOKE. The law does not apply to real estate. I could not administer on the estate of a man who owned real estate.

The CHAIRMAN. You could not administer on the estate of a deceased person where the estate exceeded \$500 in value?

Mr. COOKE. No, and it must be personal property.

The CHAIRMAN. This is to save administration costs?

Mr. COOKE. Yes.

SALARIES OF POSTMASTERS AND POST-OFFICE CLERKS.

The CHAIRMAN. Who fixes the the salary of the postmasters?

Mr. COOKE. They are recommended to the Governor, the same as any other salary, but they are based upon the United States postal laws and regulations and the act of Congress fixing the salaries of postmasters, based upon the revenues of the office.

The CHAIRMAN. What are they?

Mr. COOKE. The receipts of the Cristobal post-office would allow that man \$2,600 in the United States, but he is drawing \$2,400.

The CHAIRMAN. You estimate for \$2,600.

Mr. COOKE. Yes; very properly so. He handles a great amount of stuff. The large bulk of mail handled is under frank, from which we get no income. We registered 10,132 letters during the period from July 1, to December 31, 1905. From January 1 to June 30, 1906, we registered 33,491 letters. Of those in the first-named period, 1,128 were registered free, and of those in the second-named period, 9,361 were registered free. From July 1, to December 31, 1906, we registered 41,727 letters, of which 17,279 were free, and from January 1, to June 30, 1907, we registered 53,600 letters, of which 23,176 were free, registered free, which is just as much work for the man who does it, just as much record, just as much necessity for postal help to register a penalty envelope, as one on which an ordinary patron of the office has to pay 8 cents.

The CHAIRMAN. That is true of Washington City, and it does not affect the salary.

Mr. COOKE. It does not affect the salary here.

Mr. MANN. I think it does. I do not think there is any place in the United States that has \$95,000 postal receipts where as much is paid for salaries of postmasters as in this estimate.

Mr. COOKE. I agree with you there, but you can not properly base the salaries of these offices on the receipts.

Mr. MANN. I thought you did.

Mr. COOKE. We have four or five or six offices here where you could not base them upon the receipts at all. They are drawing six or seven hundred dollars. You could not get them for any less money than that. If you tried to, you would close up those offices, and if you did that you would do injury.

The CHAIRMAN. Your argument might apply to an increase in the clerical force in the post-offices, but does the amount of franked matter that goes through the office necessarily belong to the work of a postmaster?

Mr. COOKE. He has a portion of the responsibility to bear. That absolutely does apply, and it is used for the purpose of fixing the amount of help needed in his office.

The CHAIRMAN. There is no doubt about that.

Mr. COOKE. Then, Mr. Mann, I will tell you another thing: The postmasters up there, some of them, refer to the business of five or six big offices where the receipts are used as a basis for increasing their salaries, and then the postmasters of the offices go out and catch a lot of sixty or seventy-five dollar men as clerks.

Mr. MANN. Suppose it should be provided in legislation for the government of the Canal Zone that the postal service down here should be controlled by the Post-Office Department in Washington,

and should be a part of the postal system of the United States. Do you think we could get anybody to fill the offices and do the work here?

Mr. COOKE. You did not in Porto Rico at the salaries offered.

Mr. MANN. I am asking you.

Mr. COOKE. I can not find them down here. Everybody down here is working for the Commission. We have nobody native to the Zone here that is competent to be postmaster. We have Chinamen and Jamaicans, and so on, but we have no competent men here to run the postal system. I pay \$100 a month to the American postal employees. I am forced by an act of Congress to get them from the Civil Service Commission. I have to draft them from the Civil Service Commission. I want to invite the attention of the committee to this one thing, that in 1906, for the year, I requested and drew a requisition for 34 employees during that year, and got them, and of that number I lost by resignation and otherwise 20. I could not make more than a net gain of 14 in the year.

Mr. MANN. How many have you lost in the last six months?

Mr. COOKE. I have lost 23.

Mr. MANN. Have they gone back to the States, or have they got higher positions with the Commission?

Mr. COOKE. They have gone away from here and gone back to the States.

The CHAIRMAN. I see the same discrimination here against the railway postal clerks as has been practiced for many years in the States. I notice that clerks in the Post-Office Department who are performing their duties where there is absolutely no risk or hazard receive \$1,500, while the railway postal clerk, whose life is in danger all the time, receives but \$1,000, which is the minimum salary paid.

Mr. COOKE. It is worse than that. I am paying them only \$600.

Mr. MANN. Have you the R. P. O.?

Mr. COOKE. Not in the sense of R. P. O. We do not handle anything but sealed pouches. The railway postal clerk does no work at all, and we have four colored men doing that work at \$50 a month gold. It is not necessary to do any R. P. O. work, because the United States has just put on steamship postal clerks. These colored R. P. O. men simply handle sealed pouches.

The CHAIRMAN. I wanted to get that explanation, because if some Member of Congress should happen to see that discrimination there I would be held responsible.

Mr. COOKE. No, sir. Those clerks at \$1,000 have never been filled. At the time I had that estimate in view I had in mind the working of the mail cars here, but it has not been necessary.

The CHAIRMAN. Now with your experience and knowledge concerning the revenues of the Zone Government and their collection, are there any other sources from which the Zone Government may derive revenue if authority were given the officers down here to collect it?

AS TO THE PROPRIETY OF CERTAIN TAXES.

Mr. COOKE. I do not know. Personally I think these small taxes, of which I will give you gentlemen a list, are nonsensical in the extreme. I do not see why we should tax men around here in these poverty-stricken places.

The CHAIRMAN. In other words, the government is taxing a man's occupation?

Mr. COOKE. Yes, and it is a hard enough place to live in anyway. If a man has a hurdy-gurdy here, we would like to hear it; yet there is a tax of two or three dollars a month on it. If a man comes here with a circus, we would tax him for the performance. Here is Miss Gertrude Beeks trying to get Barnum to come down here, and yet under the present system I would be obliged to tax him if he came down here. Then we are taxing a man for cutting trees and making charcoal, which is the fuel in use here. Then if they go out and shovel up some shells on the shore and burn lime, we tax them for that. No, sir; Mr. Tawney, I do not see that the government needs any more money down here than it is getting. It is necessary, of course, to have a government down here, but it should not—

Mr. MANN. Do we tax them the same as the taxes in the city of Panama?

Mr. COOKE. They are not taxed in the city of Panama, except those who are opposed to the government. [Laughter.]

Mr. MANN. I am asking you for real information, not biased.

Mr. COOKE. No. You have gone through there and have seen three or four hundred saloons throughout the city. I think the tax in Panama is three or four dollars a month—a little grocery store, perhaps, with some peas and beans, and a little liquor, and things like that for sale, and it pays two or three dollars a month; a big saloon, a little more. There is very little tax in Panama.

The CHAIRMAN. Does the Panamanian Government impose excessive taxes of that kind on their people?

Mr. COOKE. No.

The CHAIRMAN. Then why do we do it?

Mr. COOKE. I suppose we need the money.

Mr. ROGERS. We have the same system of taxation.

The CHAIRMAN. Have we not the same system of taxation that the Panamanian Government had?

Mr. COOKE. No. The Panamanian Government gets its taxes, or did until recently, by selling franchises, the right to import this or that.

The CHAIRMAN. What do you do with the customs receipts here?

Mr. COOKE. We collect no customs.

The CHAIRMAN. I understood you to say you are the Collector of Customs, but you collect no customs?

Mr. COOKE. No, sir. I issue papers to seamen and have jurisdiction over the harbors, but this same Taft agreement provides that no collections shall be made.

The CHAIRMAN. That is the law, is it? I did not know but that in importing things from Panama into this Zone there would be customs.

Mr. COOKE. No. There are no customs duties between the Zone and Panama.

Mr. GRAFF. Merchandise that comes into the Zone other than for canal purposes has imposed on it the tariff rates of Panama, and Panama gets the benefit?

Mr. COOKE. Yes.

The CHAIRMAN. It does not come through ours?

Mr. MANN. It comes through their customs.

Mr. COOKE. It may come through ours. We deliver when they show evidence of payment.

The CHAIRMAN. They go to the Panamanian offices and pay it there?

Mr. COOKE. You see, the only ports are Ancon and La Boca.

Mr. MANN. I mean it has to be entered in the Panamanian customs?

Mr. COOKE. Yes. We do the usual duties of shipping commissioner and clear the ship, and discharge the ship, and do such duties for seamen as we are called upon to perform.

The following papers were filed by Mr. Cooke:

Collection of the revenue division, as classified below.

	Miscellaneous, quarantine, material rent.	Customs fines and penalties.	Distillation tax.	Retail sale of liquors.	Land rent.	Building rent.	Stamped paper.	Postage sales.
1906.								
First quarter.....	\$42.02	\$700.00	\$1,909.80	.....	\$2,136.47	\$112.35	\$14.20	\$8,088.16
Second quarter.....	96.42	.....	1,994.30	.....	2,770.33	101.00	.....	10,714.87
Third quarter.....	7.18	.....	1,658.40	.....	1,853.37	46.60	.....	10,123.13
Fourth quarter.....	326.49	.....	1,464.25	.....	1,837.12	59.00	.....	13,270.88
Total, 1906.....	472.11	700.00	7,026.75	.....	8,597.29	318.95	14.20	42,197.04
1907.								
First quarter.....	2,672.09	.....	754.30	.....	1,927.82	87.75	.....	15,033.90
Second quarter.....	4,318.98	.....	1,313.00	.....	2,123.62	39.50	.....	16,375.88
Third quarter.....	8,345.93	.....	920.58	\$20,400.00	2,601.76	300.00	.....	16,149.72
Total.....	15,337.00	.....	2,987.88	20,400.00	6,653.20	427.25	.....	47,559.50

MEMORANDUM.

The following collections from the Administrative Districts from April 16 to October 31, 1907, inclusive:

District of Ancon.....	\$8,781.50
District of Empire.....	24,736.13
District of Gorgona.....	14,588.97
District of Cristobal.....	11,918.03
Total.....	60,024.63

REGULATIONS PROVIDING FOR CERTAIN TAXES AND LICENSES IN THE CANAL ZONE, OTHER THAN FOR THE SALE OF INTOXICATING LIQUORS.

By authority of the President of the United States the following regulations providing for certain taxes and licenses in the Canal Zone shall be in force on and after June 1, 1907.

SECTION 1. All ordinances and resolutions heretofore enacted by any Municipal Council of the Canal Zone and now in force in the Canal Zone or any part thereof, so far as they provide for the collection of taxes and the issue of licenses—except such as relate to the issue of licenses for the sale of intoxicating liquors—are hereby repealed. But nothing herein contained shall be construed to affect any outstanding licenses issued conformably to the laws and regulations now or heretofore in force, or to require the payment of any tax provided for herein upon any article or for the doing of any act upon or for which a tax has already been paid, until such license shall have expired or have been revoked, or until the expiration of the period for which such tax has been paid.

SEC. 2. It shall be unlawful for any person, firm, or corporation to have in his or its possession any of the articles or things hereinafter enumerated, or to conduct or engage in any business hereinafter mentioned, without obtaining a license or paying the tax provided for herein. Applications for licenses

to conduct any business or for the enjoyment of any privilege under these regulations, shall be in writing, addressed to the District Collector of the district in which it is desired to conduct the business or enjoy the privilege, and stating the location of the proposed business or privilege. All licenses and taxes provided for herein shall be issued or received by the District Tax Collector. Licenses and taxes provided for in these regulations shall authorize the conduct of the business or the exercise of the privilege within the administrative district only for which the licenses are issued or the taxes paid.

SEC. 3. There shall be levied each year upon the rental value of all buildings and structures and upon all improvements upon agricultural and grazing lands—including as improvements clearings, fences, and plantations—a rental tax equal to 5 per centum of the annual rental derived or that should be reasonably derived therefrom.

SEC. 4. The owner of buildings, structures, or improvements upon the said land, or the occupant making the same, shall be primarily responsible for the said rent.

SEC. 5. *Rents and profits from public property.*

(a) The charge for rental of agricultural land shall be \$3 per hectare per annum: *Provided*, That if it shall appear at the end of the first year's occupancy of any such agricultural land that the tenant thereof has improved the same, by cultivation or the construction of buildings, to the value of \$50 per hectare, he shall be granted the free use of the land for the second year of such occupancy.

(b) The charge for the privilege of cutting firewood from public land shall be 25 cents per cord of one hundred twenty-eight (128) cubic feet.

(c) The charge for the privilege of burning charcoal upon public land shall be 2½ cents per bushel for the charcoal burned.

(d) The charge for the privilege of gathering shells from public land shall be \$1 per month for each person.

(e) The charge for the privilege of occupying space in public markets shall be fixed as to each market by the Collector of Revenues and the Superintendent of Public Works jointly.

SEC. 6. *Licenses.*—The following charges shall be made for licenses:

For keeping a dog, \$1.50 for each male dog and \$3 for each female dog per year: *Provided*, That dogs used for watch dogs on farms in the country and not permitted to run at large shall not be subject to taxation. The owner of each dog licensed shall keep the animal in good condition, and in case the dog contracts a contagious, infectious, or loathsome disease, it shall be the duty of the owner to kill it immediately. There shall be attached to the neck of each dog licensed a tag, to be supplied by the District Collector without charge to the owner of the dog, upon which shall appear the name of the administrative district, the period for which the license is issued, the number of the license, and the words "Dog License." Any dog found at large wearing such tag shall be taken up by the police and kept during three days in a proper place, after which if the owner shall not appear to claim the dog, it shall be killed by the police. If the dog is reclaimed by the owner, he shall pay \$1 fine and the license fee if unpaid.

SEC. 7. (a) For maintaining for hire a public coach or carriage for the transportation of passengers, \$1.25 per month. For maintaining for hire a public cart or dray for the transportation of baggage or freight, \$1 per month.

(b) For operating and maintaining any public restaurant, cantine, lunch counter, hotel, inn, and boarding or lodging house, \$1 per month.

(c) For carrying on the business of a peddler, \$2.50 per month: *Provided*, That no license shall be required where only articles of food are sold.

(d) For carrying on the business of an auctioneer, \$12.50 per month.

(e) For maintaining a public billiard table or bowling alley, \$5 per quarter.

(f) For public horse races, \$10 for each day.

(g) For maintaining a public dance hall, \$10 per month.

(h) For carrying on the business of a pawnbroker, \$10 per month.

(i) For conducting theatrical and like amusements tendered the public, for which an admission fee is charged:

(1) Circuses, menageries, and caravans under canvas, \$25 for the first day and \$5 for each additional day exhibitions are given.

(2) Minstrel, musical, variety, athletic, and all other similar shows or exhibitions given under canvas or within an inclosure, \$5 for each performance or exhibition.

(3) Musicians, jugglers, acrobats, trick riders, fortune tellers, and persons engaged in similar business or professions, performing in the public highway or from house to house, \$1 per month for each person.

(j) For maintaining a merry-go-round for hire, \$25 per month.

(k) For operating a hurdy-gurdy, street piano, or hand organ, \$1 per month.

Sec. 8. Tax on consumption of commercial commodities.

(a) The following taxes shall be charged and collected on the slaughter of animals for food: Each bull or steer, \$4; each cow, \$3; each calf, \$2; each hog, \$1.50; each sheep, \$1; each goat, 50 cents.

(b) For the sale of meat within the Canal Zone from animals killed outside of the Zone there shall be charged and collected a tax of 1 cent a pound.

(c) A tax of one-half of 1 per cent of the value of the stock on hand on the 1st day of the month, in any store, shop, or booth where dry goods, hardware, drugs and medicines, and other similar articles of commerce are offered for sale, shall be charged and collected monthly: *Provided*, That the minimum tax shall be \$1 per month: *And provided further*, That no tax shall be collected on groceries and articles of food.

(d) For the retail sale of soda water or other aerated waters from any fountain or booth there shall be collected a tax of \$2 a month.

(e) For the sale of soda water, other aerated waters, and ice cream from any cart or other vehicle, there shall be charged and collected a tax of \$1 a month.

(f) For the retail sale of tobacco in any form, there shall be charged and collected a tax of \$2 a month.

Sec. 9. Poll Tax.—Each male, a permanent resident of the Canal Zone, between the ages of 18 and 60 years, shall be required to pay a poll tax of \$2 yearly in advance. The tax shall be due and payable January 1 of each year, and shall be delinquent January 31: *Provided*, That any person may, by working two days on public improvements in the Canal Zone, under the direction of the Superintendent of Public Works and presenting to the District Tax Collector a certificate of such work, be relieved from the payment of this tax.

Sec. 10. Weights and Measures.—The fee for sealing any set of weights or measures shall be 25 cents.

Sec. 11. Unless otherwise stated, annual taxes and licenses shall be due and payable the first day of July; semiannual taxes and licenses the 1st days of July and January; quarterly taxes and licenses the 1st days of July, October, January, and April; and monthly taxes and licenses the first day of each month. The tax or license for any part of any period herein named shall be the same as for the full period.

Sec. 12. All taxes and licenses fixed herein shall be payable in advance.

Sec. 13. All amounts referred to herein are in United States currency.

Sec. 14. Any person violating any provision of these regulations shall be guilty of a misdemeanor, and shall, upon conviction in any district court of the Canal Zone, be punished by fine not exceeding \$25 or imprisonment not exceeding thirty days, or both fine and imprisonment, in the discretion of the court.

Approved by the Isthmian Canal Commission April 27, 1907.

Approved by the Secretary of War May 17, 1907.

REGULATIONS RESPECTING THE SALE OF INTOXICATING LIQUORS IN THE CANAL ZONE, ISTHMUS OF PANAMA.

By authority of the President of the United States the following regulations respecting the sale of intoxicating liquors within the Canal Zone, Isthmus of Panama, will be in force on and after June 1, 1907:

SECTION 1. All laws and regulations heretofore adopted governing the sale of intoxicating liquors, or the issue of licenses therefor, are hereby repealed, and the following substituted therefor. But these regulations shall not affect any outstanding license issued conformably to the laws and regulations now or heretofore in force.

Sec 2. It shall be unlawful for any person or any employee or agent of such person to conduct or maintain any saloon, bar, or drinking place, or to keep in stock, sell, serve, give away, or otherwise dispose of any fermented or distilled vinous, malt, or spirituous beverages or liquors, unless the proprietor shall have first obtained a license therefor.

Sec. 3. A license for a period of not exceeding one year, terminating the 30th day of June, may be issued to a person or persons of good character, authoriz-

ing him or them to keep and maintain, at a definite location and place specified in the license, subject to these regulations, a saloon, bar, or drinking place for the sale of intoxicating liquors, including thereunder fermented, vinous, malt, and spirituous beverages, in quantities less than five gallons.

SEC. 4. The Isthmian Canal Commission shall determine, not less than sixty days before the 1st of July of each year, the number of saloons or drinking places that may be licensed in or near each town or village in the Canal Zone. In doing so it shall determine approximately the limits within which such saloons and drinking places may be located, having regard to the hotels, kitchens, labor camps, hospitals, asylums, railroad stations, schools, churches, or other buildings in each town or village.

SEC. 5. Notice of the number of saloons permitted in each town or village and the limits within which they may be located shall be advertised by the Collector of Revenues at least once a week, for two successive weeks, in two newspapers of general circulation on the Isthmus of Panama.

SEC. 6. Applicants shall be invited to submit applications for licenses prior to June 1 of each year. With his application each applicant shall submit a sworn statement in writing showing his age, citizenship, the value and location of the property, real and personal, owned by the applicant within the Canal Zone; his business experience and previous occupations, and the places and times where and when the same were carried on; the length of time the applicant has been engaged in business on the Isthmus of Panama, and the character and place of his business; whether the applicant has been tried or convicted in any court for any violation of law; the town or village at or near which, and one or more locations therein or near thereto, at one of which he proposes to carry on business; the character of the building in which the business will be conducted; and the approximate value of the average stock the applicant proposes to carry. His application shall be supported by the affidavits of two well-known residents of the Canal Zone or of the Republic of Panama that they have known the applicant for not less than six months, and that he is a person of good moral character and business standing, and the statement shall be accompanied by a certified check or certificate of deposit, made payable to the Treasurer of the Canal Zone for not less than \$200 gold.

SEC. 7. On or prior to June 10 of each year the Isthmian Canal Commission shall publish a statement announcing the names of the successful applicants and the locations within which they will be licensed to carry on business.

SEC. 8. In awarding the licenses to the various applicants the Commission will take into consideration the personal character, financial standing, business record, and the previous good conduct of the applicant in any business in which he may have engaged, the location of the applicant's proposed saloon, and the character of the house in which he proposes to carry it on, with a view to awarding the preference to those applicants carrying on business in the most substantial, open, and well-appointed houses and those freest from sanitary objections, and any other fact respecting the applicant or his proposed business that it deems proper to take into consideration.

SEC. 9. All licensees hereunder shall pay for license a fee of \$1,200, United States currency, per year, one-half of which shall be paid for each semiannual period in advance.

SEC. 10. All saloons, bars, and drinking places licensed under these regulations shall be closed from 11 o'clock p. m. until 6 o'clock a. m. the following day, and from 12 o'clock noon until 6 o'clock a. m. the following day on Sundays and all legal holidays, and it shall be unlawful to sell, give away, or otherwise dispose of any fermented, vinous, malt, or spirituous or other intoxicating liquors in any saloon, barroom, or other drinking place between the above-mentioned hours.

SEC. 11. Every saloon, bar, or other drinking place shall open on a street, with a front door which shall be not less than 4 feet in width and 8 feet in height, and a window which shall be not less than 3 feet in width and 5 feet in height. The door and windows shall, at all times during hours when the saloon, bar, or drinking place is open for business, be entirely unobstructed or uninclosed with bars, shutters, or otherwise except with glass, and they shall be so arranged that each and every part of the room may be seen from each window or door at any and all times. The room in which the saloon, bar, or drinking place is situated shall contain not less than 400 square feet of floor space. The

walls and ceiling of the room shall be of wood or plaster, and the floor shall be of wood or concrete. It shall at all times be kept in a cleanly condition, and shall be provided with adequate means of light and ventilation. There shall not be kept in any such room any tables, chairs, or benches for the use of customers, and only such tables, chairs, and benches as may be necessary for the use of employees of the saloon, bar, or drinking place in the transaction of their business. Any room used as a saloon, bar, or drinking place shall not be used for any other purpose, and it shall be unlawful to have or expose for sale therein any article other than fermented and distilled liquors and carbonated beverages usually known under the name of soft drinks, except cigars and tobacco, which may be sold upon the payment of the required license fee therefor. Where billiard tables or bowling alleys are operated in connection with any saloon, they shall be located in rooms separate and distinct from the saloon or drinking place proper. Such rooms, or any room, connecting with the saloon or drinking place, shall open upon a street, with rooms and windows arranged as is provided for in the case of the saloon or drinking place, and shall be exposed to complete observation upon Sundays and holidays in the same manner. It shall be unlawful at any time to serve drinks under the same or any license in any such billiard room or bowling alley, or other room connecting with the saloon or drinking place proper. It shall be unlawful for the holder of any license herein provided for to maintain any but a quiet and orderly place, or to sell or serve or permit to be sold or served or to be given away, any intoxicating liquors to any intoxicated person or to any person under the age of 16 years, or to permit any intoxicated person, or any person under the age of 16 years to be or remain in or about the premises where such liquors are kept for sale, or to sell or keep therein any wine, beer, or liquors except such as is of good, standard quality, as defined by the sanitary regulations of the Canal Zone, and free from adulteration.

SEC. 12. In the event of the revocation or cancellation of any license granted under the terms of these regulations another license may, in the discretion of the Isthmian Canal Commission, be issued for the unexpired portion of the year for which the revoked or canceled license was issued for the sale of liquor at the same place, but such license shall be issued only after advertisement for the same length of time and under the same conditions as provided herein for the issuance of the canceled or revoked license.

SEC. 13. It shall be the duty of the holder of a license for the sale of intoxicating liquors to keep it posted in a conspicuous place in the room where the liquors are sold or served, and the failure to do so is declared unlawful.

SEC. 14. No license shall be transferred from one person to another, or from one place to another, without the consent of the Isthmian Canal Commission.

SEC. 15. All licenses herein provided for shall be issued by the Collector of Revenues of the Canal Zone upon the authority of the Isthmian Canal Commission regularly granted, and upon payment to the Collector of Revenues, or his deputy or assistant, of the amount of such license as herein provided for.

SEC. 16. Criminal prosecution under these regulations shall be instituted in the district courts of the Canal Zone against the person or persons violating any of the provisions of these regulations, and, upon conviction thereof, offenders shall be punished for each offense by fine not to exceed \$25 United States currency, or imprisonment not to exceed thirty days, or both.

SEC. 17. In case any holder of a license herein provided for shall be convicted of a violation of any of the provisions of this ordinance, or of any police regulation or law governing the sale of liquors, now or hereafter in force in the Canal Zone, his license shall at once become null and void as the consequence of such conviction.

SEC. 18. Any license issued under the provisions of these regulations may be canceled by the Isthmian Canal Commission at any time for good and sufficient cause, but if the license should be canceled for any cause other than a violation of this or any law or regulation in force in the Canal Zone the license fee proportioned to the unexpired portion of the license shall be refunded to him.

Approved by the Isthmian Canal Commission, April 27, 1907.

GEO. W. GOETHALS,
Chairman.

Approved by the Secretary of War, May 17, 1907.

412 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

DEPARTMENT OF REVENUES.

(Gold roll.)

1 Collector of Revenues.....	per month..	\$416.87
1 Deputy Collector at Cristobal.....	do.....	200.00
1 Deputy Collector.....	do.....	175.00
1 Inspector of Revenues.....	do.....	125.00
1 Deputy Collector and Inspector of Customs.....	do.....	125.00
8 Inspectors of Customs, at \$100 each.....	do.....	300.00
5 Clerks (1 chief bookkeeper), at \$150 each.....	do.....	750.00
6 Clerks (1 storekeeper), at \$125 each.....	do.....	750.00
3 Clerks (1 assistant storekeeper), at \$100 each.....	do.....	300.00
1 Copyist.....		75.00
		<hr/>
		\$3,216.87

(Silver roll, shown in United States currency.)

1 Messenger.....		25.00
1 Messenger.....		30.00
1 Messenger.....		15.00
		<hr/>
		70.00
		<hr/>
Total.....		3,286.87

District tax collectors (municipal officials).

(Gold roll.)

4 Tax Collectors, at \$150 each.....		\$600.00
1 Inspector.....		100.00
1 Copyist.....		75.00

(Silver roll, shown in United States currency.)

1 Inspector.....		100.00
1 Copyist.....		75.00
1 Copyist.....		60.00
		<hr/>
		1,010.00
		<hr/>
Total.....		4,296.87

Total number of gold employees, 29; silver employees, 6; total salaries, \$4,296.87.

DIVISION OF POSTS.

(Gold roll.)

1 Postmaster at.....	per month..	\$200.00
2 Postmasters, at \$166.67 each.....	do.....	333.34
2 Postmasters, at \$158.33 each.....	do.....	316.66
1 Postmaster at.....	do.....	150.00
6 Postmasters, at \$137.50 each.....	do.....	825.00
4 Postmasters, at \$125 each.....	do.....	500.00
1 Postmaster at.....		40.00
		<hr/>
		\$2,365.00

17 Postmasters, average, \$139.11.

15 Postal Clerks, at \$100 each.....	per month..	1,500.00
17 Postal Clerks, at \$125 each.....	do.....	2,125.00
1 Copyist.....	do.....	75.00
		<hr/>
		3,700.00

33 Postal Clerks, average, \$112.12.

(Silver roll shown in U. S. currency.)

4 Railway Mail Messengers, at \$50 each.....	per month..	200.00
1 Railway Mail Messenger at.....	do.....	37.50
1 Messenger.....	do.....	60.00
5 Messengers, at \$37.50 each.....	do.....	187.50
8 Messengers, at \$30 each.....	do.....	90.00

HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL. 413

9 messengers, at \$25 each-----per month-- \$225.00
 1 messenger ----- 20.00

Total----- \$6,885.00

Total number of gold employees, 50; silver, 24.

Total number of employees in department of revenues and division of posts:
 Gold, 79; silver, 109. Total salaries for month of October, \$12,181.67.

Estimated receipts for next year----- \$178,100.00

Total receipts for current year----- 146,180.04

Surplus----- 31,919.96

SALARIES FOR POSTMASTERS IN THE CANAL ZONE POSTAL SYSTEM.

Cristobal----- \$200 per month

Postal Laws and Regulations, page 112. Postmasters, second class; gross receipts, \$13,000, not exceeding \$16,000; salary, \$2,400.

Culebra and Empire----- \$166.66

Postal Laws and Regulations. Gross receipts, \$8,000 and not exceeding \$9,000; salary, \$2,000.

Ancon, Gorgona----- \$158.33

Postal Laws and Regulations. Gross receipts, \$7,000, not exceeding \$8,000; salary, \$1,900.

Ancon Station A----- \$150

Postal Laws and Regulations. Gross receipts, \$6,000, not exceeding, \$7,000; salary, \$1,800.

Five offices, salary, \$137.50 per month; all other offices, \$125 per month.

Money-order business, 1906-7.

	Number issued.	Amount.
1906.		
July.....	2,754	\$98,401.06
August.....	4,774	128,252.16
September.....	4,454	118,114.96
October.....	5,840	150,277.12
November.....	5,883	151,379.69
December.....	6,785	172,769.03
Total.....	30,490	819,193.91
1907.		
January.....	7,407	201,051.67
February.....	7,609	219,310.19
March.....	6,246	221,859.03
April.....	10,763	323,122.97
May.....	8,782	253,012.96
June.....	9,532	281,415.31
Total.....	60,339	1,499,771.43
July.....	11,561	347,869.84
August.....	9,518	311,909.00
September.....	11,108	332,327.45
October.....	11,379	351,917.67
Total.....	43,566	1,344,023.96

RECAPITULATION.

June, 1906.....	1,615	\$50,066.15
July 1 to Dec. 31, 1906.....	30,490	819,193.91
Jan. 1 to June 30, 1907.....	50,339	1,499,771.43
July 1 to Oct. 31, 1907.....	43,566	1,344,023.96
Total.....	126,010	3,713,055.45

- Increase 65 per cent over former half year.
- Increase 81 per cent over former half year.
- Proportionate increase 29 per cent over former half year.
- Proportionate increase 84 per cent over former half year.

Postage sales.

	Amount.		Amount.
1906.		1907.	
January.....	\$2,004.18	January.....	\$3,083.68
February.....	2,359.01	February.....	4,048.57
March.....	3,724.97	March.....	6,702.45
April.....	3,412.93	April.....	5,115.70
May.....	3,179.06	May.....	6,442.54
June.....	4,122.88	June.....	4,817.64
Total.....	18,803.03	Total.....	b 31,400.78
July.....	3,412.03	July.....	4,992.11
August.....	2,965.23	August.....	6,031.22
September.....	3,725.87	September.....	5,126.30
October.....	3,401.14	October.....	6,904.25
November.....	4,941.64		
December.....	4,928.10		
Total.....	a 23,394.01	Total.....	c 23,053.97

a Increase 24 per cent over former half year.

b Increase 34 per cent over former half year.

c Proportionate increase, 11 per cent over former half year.

RECAPITULATION.

June, 1906.....	\$18,803.03
July 1 to Dec. 31, 1906.....	23,394.01
Jan. 1 to June 30, 1907.....	31,400.78
July 1 to Oct. 31, 1907.....	23,053.97
Total.....	96,660.79

Statement of registry business in the Canal Zone from July 1, 1905, to June 30, 1907, shown by semiannual periods.

[July 1 to December 31, 1905.]

Number of domestic letters registered.....	4,620	
Number of domestic parcels registered.....	754	
Number of foreign letters registered.....	3,554	
Number of foreign parcels registered.....	76	
Letters and parcels registered free (official).....	1,128	10,132

[January 1 to June 30, 1906.]

Number of domestic letters registered.....	10,532	
Number of domestic parcels registered.....	883	
Number of foreign letters registered.....	12,540	
Number of foreign parcels registered.....	175	
Letters and parcels registered free (official).....	9,361	33,491

[July 1 to December 31, 1906.]

Number of domestic letters registered.....	9,341	
Number of domestic parcels registered.....	2,119	
Number of foreign letters registered.....	12,774	
Number of foreign parcels registered.....	214	
Letters and parcels registered free (official).....	17,279	41,727

[January 1 to June 30, 1907.]

Number of domestic letters registered.....	10,894	
Number of domestic parcels registered.....	2,609	
Number of foreign letters registered.....	16,529	
Number of foreign parcels registered.....	392	
Letters and parcels registered free (official).....	23,176	53,600
Total.....		138,950

Statement showing number of gold employees assigned to and separating from the service of the department of revenues.

January 1 to December 31, 1906:		
Assigned	-----	34
Separating	-----	20
		<hr/> 14
January 1 to October 31, 1907:		
Assigned	-----	42
Separating	-----	23
		<hr/> 19
Total net gain in two years	-----	<hr/> 33

STATEMENT OF MR. GEORGE L. CAMPEN, WATER COMMISSIONER AND SUPERINTENDENT OF PUBLIC WORKS, DEPARTMENT OF CIVIL ADMINISTRATION.

The CHAIRMAN. Mr. Campen, will you state what the scope and jurisdiction of your office is, both in Panama and Colon, and on the Canal Zone?

DUTIES OUTLINED.

Mr. CAMPEN. Under the Executive Order, the last Executive Order, the Superintendent of Public Works had devolved upon him the collecting of water rents in the cities of Panama and Colon, and the construction of roads, trails, and municipal improvements within the Zone. Since then the construction of roads, trails, and all construction work has been placed under the Division of Municipal Engineering, and the maintenance of paving, water, and sewers in the cities of Panama and Colon has been placed upon the Superintendent of Public Works, and only in an advisory way have I anything to do with the construction of roads, trails, markets, and slaughter houses within the Zone. The actual work is done by the Division of Municipal Engineering, because they have an organization, and it would be a duplication of organization to have both of us do it.

The CHAIRMAN. So that the scope and jurisdiction of your work is limited practically now to the collection of water rents and to the paving and repairing of pavements in the city of Colon and Panama?

Mr. CAMPEN. To the maintenance, operation, and collection of rents for paving, water, and sewerage within the cities of Colon and Panama.

Mr. BLACKBURN. One moment right there, Mr. Chairman, please. In order that the committee may not be led into a mistake, this is the agreement that I referred to between Mr. Commissioner Rouseau's department and my own, to avoid duplication in the organization. But there is an additional duty performed by this official for which he has not given himself credit. For obvious reasons it was deemed best that the actual construction of these roads and bridges and culverts should be turned over to the other departments; but as we pay for them, the cost had to come out of the local or Zone funds in contradistinction to the legitimate funds for the canal appropriated by Congress, and it was agreed that they should not be laid

out, nor work of construction entered upon, without estimates being first submitted to the Department of Civil Administration, so that it might be advised and might advise the other department as to its ability to meet the cost when inaugurated. That is a very essential work that still devolves upon the Superintendent of Public Works. Otherwise the Department of Civil Administration might be overwhelmed with obligations beyond its utmost capacity to meet; so that as an advisory official he still has this important and essential part of the work to do.

The CHAIRMAN. In other words, the Department of Construction and Engineering can make only such trails and roads as the chief of the Division of Public Works under the Department of Civil Administration approves?

Mr. BLACKBURN. Yes; because we have to pay the piper, and may not have the money.

Mr. CAMPEN. One thing I wish to state further. Under the agreement with the Municipal Engineering Division and under the Chairman's appointment I am acting as inspector, and have inspectors under me over the Zone to detect waste and leaks of water, on account of the shortage of water last year. I have inspectors under me for that purpose, and in addition to the work in both cities, there is also an inspection of plumbing, all plumbing done by outside people in private houses in the Canal Zone.

The CHAIRMAN. Any of it in Panama?

Mr. CAMPEN. I have all the inspection of plumbing in Panama and Colon. That is included in the maintenance and operation of the water works and sewers.

Mr. MADDEN. That is for the purpose of seeing that the plumbing and sewer construction are put in in a sanitary way?

Mr. CAMPEN. Yes, sir.

OPERATION OF THE WATER SYSTEM IN PANAMA AND COLON.

The CHAIRMAN. Do we do all the work in connection with the operation and maintenance of the water system and the collection of rentals and water rates? Does the Civil Administration perform all the work incident to the maintenance and operation of the water system and the collection of water rents?

Mr. CAMPEN. Within the local boundaries of the cities of Colon and Panama.

The CHAIRMAN. Do we get all of the water rents, or only \$50,000 water rent in all?

Mr. CAMPEN. We get all of them. That is under the agreement between the Chairman and the Secretary of State. The city of Panama or the Panamanian Government pays for the rental of water in the city of Panama the difference between \$65,525 and the amount collected from the individuals for their water rent.

The CHAIRMAN. So that if the water rent aggregates \$75,000, we would get all of it?

Mr. CAMPEN. We would get all of it.

The CHAIRMAN. If the water rents fall below \$65,000 the Panamanian Government pays the difference?

Mr. CAMPEN. Yes; pays the difference.

The CHAIRMAN. Up to what amount?

Mr. CAMPEN. \$65,525 per year in the city of Panama, and \$67,400 in the city of Colon per year.

The CHAIRMAN. Until 1965?

Mr. CAMPEN. It is for fifty years.

Mr. BLACKBURN. Do not misunderstand that agreement, Mr. Chairman. That is the amount that is necessary to discharge the debt—principal and interest—at the end of fifty years; speaking for convenience sake in round numbers, \$65,000 a year. If the water rates that we collect exceed that amount, we must refund the surplus. If they fall short of that amount, the Government of Panama must make that deficit good. So that in arranging the water rates in the two cities we were guided, of course, by the amount of consumption in those two cities, both for the year and half-year. We have agreed on the amount of charge—the water rate that would be necessary to produce this revenue of \$65,000 a year—which will extinguish the debt.

Mr. MANN. What is the highest amount, then, that can be paid into the Treasury of the United States annually?

Mr. BLACKBURN. Sixty-five thousand dollars in round numbers, which is the annual payment.

Mr. MANN. The gentleman said a moment ago that if we collected \$75,000 it was all turned into the Treasury.

Mr. BLACKBURN. Mr. Campen was mistaken as to the terms of the agreement between the two governments. I am speaking of the Taft agreement.

Mr. CAMPEN. I have the agreements with the city of Panama and the city of Colon.

The CHAIRMAN. Will you give copies to the stenographer and have him incorporate them as part of your statement?

Mr. CAMPEN. Yes, sir.

Following are the agreements referred to:

ANCON, October 7, 1907.

SIR: I inclose herewith a copy of the contract between the Isthmian Canal Commission and the Republic of Panama, relative to the reimbursement of the United States for the cost of the installation, operation, and maintenance of water mains, sewers, and street paving in the city of Colon. Copy of a similar contract relative to the city of Panama will be furnished you as soon as it has been signed by the chairman.

Respectfully,

JOHN K. BAXTER,
Acting Executive Secretary.

The SUPERINTENDENT OF PUBLIC WORKS.

AGREEMENT.

Ricardo Arias, Secretary of Foreign Affairs of the Republic of Panama, in the name and on behalf of the National Government, and duly authorized by the Acting President of the Republic, of the one part, and George W. Goethals, Chairman of the Isthmian Canal Commission, acting for the United States of America, by authority of the President of the United States, and upon the direction of the Secretary of War, of the other part;

In consideration that the said Isthmian Canal Commission has been engaged in the installation of a system of waterworks and sewers in the city of Colon, and in paving the streets of said city, as sanitary measures, as provided for by Article VII of the treaty between the United States and Panama, signed on November 18, 1903; and that the Government of the Republic of Panama is desirous of enabling the United States to reimburse itself for the cost of installing waterworks and sewers and paving the streets as provided for by Article VII of the treaty above referred to;

Have made the following agreement:

1. The Isthmian Canal Commission agrees that it will maintain and operate for fifty (50) years the water and sewer systems installed by it in the city of Colon, and that it will maintain and repair for ten (10) years the pavements constructed by it in the city of Colon.

2. It being estimated that the total amount to be raised in fifty (50) years to reimburse the United States for the cost of installation, and operation and maintenance for fifty (50) years, of the water and sewer systems, and for the cost of construction and maintenance and repair for ten (10) years, of the pavements, is \$3,492,500, or \$69,850 United States currency per year, the Republic of Panama agrees that the United States may reimburse itself in that amount by the collection of water rates from private consumers in the city of Colon, in the amount and subject to the conditions provided for by the regulations, which are made a part of this agreement, respecting the use of water from public mains and the collection of water rates, promulgated by the President of Panama as Decree No. 33 of July 20, 1906.

3. In consideration of the large amount of water consumed by the Isthmian Canal Commission and the Panama Railroad Company in the city of Colon, the fact that neither the Isthmian Canal Commission nor the Panama Railroad Company uses or will use the public sewer system in the city of Colon and the fact that the Panama Railroad Company abandoned and turned over to the Isthmian Canal Commission for use in the city of Colon its water system in that city from which it secured water for its use at a cost of 11 cents, United States currency, per thousand gallons, the Republic of Panama agrees that the amount to be paid by the Isthmian Canal Commission and the Panama Railroad Company for water consumed by them in the city of Colon shall be 30 cents United States currency per thousand gallons.

4. The Republic of Panama agrees that it will pay to the Isthmian Canal Commission, quarterly, the difference between the amount collected by the Isthmian Canal Commission from water consumers in the city of Colon, under the regulations referred to and the preceding section, and the sum of \$17,500 United States currency, provided such collections do not aggregate the sum of \$17,500 quarterly, such quarterly amount to be paid by the Republic of Panama to cover the water consumed for public purposes in the city of Colon.

5. If, at the end of two years from the date this agreement becomes effective, it shall appear that the United States can reimburse itself in fifty (50) years for the cost of the work referred to herein by the collection of lower water rates than are provided for in the regulations referred to, or that it will be necessary to increase the rates to reimburse the United States within the time stated for the cost of such work, this agreement shall be modified or amended so as to increase or decrease the rates accordingly. This agreement shall likewise be modified and amended so as to increase or decrease the rates, as may appear to be necessary, at the end of five (5) years from the date it becomes effective, and at the end of each succeeding period of five (5) years thereafter during the life of the agreement. If, however, at the end of the period of two years from the date this agreement becomes effective, or at the end of the period of five (5) years from the date it becomes effective, or at the end of any succeeding period of five (5) years thereafter, it shall appear that the rates provided for in the regulations referred to, or in any amendment or modification thereof, are neither excessive nor inadequate for the purpose stated, then this agreement, and the amendments and modifications hereof, shall be and remain in force until and including the end of the next succeeding period provided for in this section.

6. At the end of ten (10) years from the date this agreement becomes effective the Republic of Panama shall have the right to take over from the Isthmian Canal Commission, and the Isthmian Canal Commission shall have the right to turn over to the Republic of Panama, the maintenance of the pavements installed by the Isthmian Canal Commission in the city of Colon.

7. It is the purpose of this agreement to enable the United States to reimburse itself for the actual amount expended and to be expended by it for the installation of water and sewer systems in the city of Colon, the operation and maintenance of such systems for the period of fifty (50) years, the pavements constructed by the United States in the city of Colon and the maintenance and repair of such pavements for a period of ten (10) years, together with interest at two (2) per cent per annum on all amounts expended or to be expended by the United States; and at the end of fifty (50) years from the date this agreement becomes effective, if it shall appear that the United States

has collected, by the rates established by this and subsequent agreements, more than such actual cost, with interest, such excess shall be returned to the Republic of Panama; and if it shall appear at the end of such period that the United States has collected less than such actual cost, with interest, the Republic of Panama shall pay to the United States the deficit.

8. The Republic of Panama, by such agents and officers as it may appoint for that purpose, shall have the right at all times to examine the books and accounts of the Isthmian Canal Commission to satisfy itself of the accuracy of the charges made by the Isthmian Canal Commission for the work covered by this agreement.

This agreement shall be in force on and after July 1, 1907.

Executed this 20th day of September, 1907.

RICARDO ARIAS,
Secretary of Foreign Relations of the Republic of Panama.
THE ISTHMIAN CANAL COMMISSION,
GEO. W. GOETHALS, *Chairman.*

EXECUTIVE ORDER.

By direction of the President, it is ordered:

Contract between the Isthmian Canal Commission and the Republic of Panama as approved by the Commission June 7, as modified by the Isthmian Canal Commission and the Republic of Panama and approved by the Commission August 15, 1907, is hereby approved.

ROBERT SHAW OLIVER,
Acting Secretary of War.

WAR DEPARTMENT,
Washington, D. C., September 4, 1907.

ISTHMIAN CANAL COMMISSION,
WASHINGTON OFFICE,
September 6, 1907.

Official copy respectfully furnished the Head of the Department of Civil Administration, Ancon, Canal Zone, Isthmus of Panama, for his information.

The above order relates to the agreement respecting water rates in the city of Panama.

H. F. HODGES,
General Purchasing Officer in Charge of Office.

Copy respectfully referred to the Superintendent of Public Works.

JO. C. S. BLACKBURN,
Head Department of Civil Administration.

ANCON, September 14, 1907.

ANCON, October 9, 1907.

SIR: I inclose herewith a copy of contract between the Isthmian Canal Commission and the Republic of Panama relative to the collection of water rents in the city of Panama. A copy of a similar contract relative to the collection of water rents in the city of Colon has already been furnished you.

Respectfully,

JO. C. S. BLACKBURN,
Head of Department of Civil Administration.

THE SUPERINTENDENT OF PUBLIC WORKS.

AGREEMENT.

Ricardo Arias, Secretary of Foreign Affairs of the Republic of Panama, in the name and on behalf of the National Government, and duly authorized by the Acting President of the Republic, of the one part, and George W. Goethals, Chairman of the Isthmian Canal Commission, acting for the United States of America, by authority of the President of the United States, and upon the direction of the Secretary of War, of the other part;

In consideration that the said Isthmian Canal Commission has been engaged in the installation of a system of water works and sewers in the city of Panama,

and in paving the streets of said city, as sanitary measures, as provided for by Article VII of the treaty between the United States and Panama, signed on November 18, 1903; and that the Government of the Republic of Panama is desirous of enabling the United States to reimburse itself for the cost of installing waterworks and sewers and paving the streets as provided for by Article VII of the treaty above referred to;

Have made the following agreement:

1. The Isthmian Canal Commission agrees that it will maintain and operate for fifty (50) years the water and sewer systems installed by it in the city of Panama, and that it will maintain and repair for ten (10) years the pavements constructed by it in the city of Panama.

2. It being estimated that the total amount to be raised in fifty (50) years to reimburse the United States for the cost of installation and operation and maintenance for fifty (50) years, of the water and sewer systems, and for the cost of construction and maintenance and repair for ten (10) years of the pavements, is \$3,276,250, or \$65,525 United States currency per year, the Republic of Panama agrees that the United States may reimburse itself in that amount by the collection of water rates from private consumers in the city of Panama in the amount and subject to the conditions provided for by the regulations which are made a part of this agreement respecting the use of water from public mains and the collection of water rates, approved by the Republic of Panama, by its proper officials and the Isthmian Canal Commission, to be in force on and after July 1, 1907.

3. The Republic of Panama agrees that it will pay to the Isthmian Canal Commission, quarterly, the difference between the amount collected by the Isthmian Canal Commission from private water consumers in the city of Panama, under the regulations referred to, and the sum of \$16,400 United States currency, provided such collections do not aggregate the sum of \$16,400 quarterly, such quarterly amount to be paid by the Republic of Panama to cover the water consumed for public purposes in the city of Panama.

4. If, at the end of two years from the date this agreement becomes effective, it shall appear that the United States can reimburse itself in fifty (50) years for the cost of the work referred to herein by the collection of lower water rates than are provided for in the regulations referred to, or that it will be necessary to increase the rates to reimburse the United States within the time stated for the cost of such work, this agreement shall be modified or amended so as to increase or decrease the rates accordingly. This agreement shall likewise be modified and amended so as to increase or decrease the rates as may appear to be necessary, at the end of five (5) years from its date, and at the end of each succeeding period of five years thereafter during the life of the agreement. If, however, at the end of the period of two years from the date this agreement becomes effective, or at the end of the period of five years from the date it becomes effective, or at the end of any succeeding period of five years thereafter, it shall appear that the rates provided for in the regulations referred to, or in any amendment or modification thereof, are neither excessive nor inadequate for the purpose stated, then this agreement, and the amendments and modifications hereof, shall be and remain in force until and including the end of the next succeeding period provided for in this section.

5. At the end of ten (10) years from the date this agreement becomes effective the Republic of Panama shall have the right to take over from the Isthmian Canal Commission, and the Isthmian Canal Commission shall have the right to turn over to the Republic of Panama the maintenance of the pavements installed by the Isthmian Canal Commission in the city of Panama.

6. It is the purpose of this agreement to enable the United States to reimburse itself for the actual amount expended and to be expended by it for the installation of water and sewer systems in the city of Panama; the operation and maintenance of such systems for the period of fifty (50) years; the pavements constructed by the United States in the city of Panama and the maintenance and repair of such pavements for a period of ten (10) years, together with interest at two (2) per cent per annum on all amounts expended or to be expended by the United States; and at the end of fifty (50) years from the date this agreement becomes effective, if it shall appear that the United States has collected, by the rates established by this and subsequent agreements, more than such actual cost, with interest, such excess shall be returned to the Republic of Panama; and if it shall appear at the end of such period that the United States has collected less than such actual cost, with interest, the Republic of Panama shall pay to the United States the deficit.

7. The Republic of Panama, by such agents and officers as it may appoint for that purpose, shall have the right at all times to examine the books and accounts of the Isthmian Canal Commission to satisfy itself of the accuracy of the charges made by the Isthmian Canal Commission for the work covered by this agreement.

This agreement shall be in force on and after July 1, 1907.

Executed this 20th day of September, 1907.

RICARDO ARIAS,

Secretary of Foreign Relations of the Republic of Panama.

THE ISTHMIAN CANAL COMMISSION,

GEO. W. GOETIHALS, *Chairman.*

Mr. MANN. Are all the receipts from water rent turned into the Treasury of the United States?

Mr. CAMPEN. All of it is turned in by me to the Disbursing Officer. Further than that I can not tell you.

Mr. MANN. Do you take anything out for repairs?

Mr. CAMPEN. No, sir.

Mr. MANN. That has to be appropriated for and estimated for?

Mr. CAMPEN. Yes, sir.

COST OF WATER SYSTEM, PAVING, AND SEWERAGE.

The CHAIRMAN. How do you arrive at the cost of water rent and the paving and sewerage?

Mr. CAMPEN. The paving and water and sewerage were done by the Division of Municipal Engineering. It has only been an estimate up to this time, but figures for the exact cost for several years are being worked out at this time, and as I read the agreement here, it can be changed at the end of two years, and at the end of five years thereafter.

Mr. BLACKBURN. He is speaking now of the water rate charges.

The CHAIRMAN. He is also answering my question. I wanted to know how he arrived at the cost of the installation of the water and sewer system. You say that is being worked out by the Department of Engineering and Construction of the Isthmian Canal Commission?

Mr. CAMPEN. Yes, sir.

The CHAIRMAN. Up to this time you have had no accurate statement of the cost of these improvements in either of the cities?

Mr. CAMPEN. There have been some statements made, but there has been some divergence between the statements of the auditor and those of the division. But those are now being worked out. The total amount estimated for Colon, including the depreciation, operation, and maintenance for a period of fifty years for water and sewers, and the paving for ten years, according to estimates based upon an estimate on July 1 was some \$3,492,500. That divided by fifteen years would amount to \$69,850 for Colon.

The CHAIRMAN. How much for Panama?

Mr. CAMPEN. I think it is upwards of \$3,000,000, or \$65,525 per year.

The CHAIRMAN. What is the aggregate estimated cost of water, sewerage, and paving in the two cities?

Mr. CAMPEN. I have not the data here.

The CHAIRMAN. You just stated the cost in Colon.

Mr. CAMPEN. That is the cost of maintenance for fifty years for water and sewers, and the interest charges and the depreciation

charges. At the end of fifty years it is upwards of \$3,000,000 in the city of Panama, and \$3,492,500 in the city of Colon. That includes the maintenance ten years on paving, and fifty years maintenance on water and sewers.

Mr. MADDEN. That will be upwards of \$6,000,000?

Mr. CAMPEN. Yes, sir.

The CHAIRMAN. Have you any data there showing the initial cost?

Mr. CAMPEN. I can prepare it and present it to you.

The CHAIRMAN. That is the estimated cost?

Mr. CAMPEN. Yes, sir.

The CHAIRMAN. And the actual cost has been figured out?

Mr. CAMPEN. Yes, sir.

Mr. MADDEN. Does anybody know how much of this is interest, how much is depreciation, and how much is maintenance charge?

Mr. CAMPEN. Possibly I have it here with me. No; I have not the figures with me.

The CHAIRMAN. Under our agreement are we obliged to repair the streets of Panama and Colon?

Mr. CAMPEN. Yes; for a period of ten years.

The CHAIRMAN. Is that a part of the treaty, or is it a subsequent agreement?

Mr. CAMPEN. A subsequent agreement.

The CHAIRMAN. And you have estimated that it will require \$10,000 for the repairs to the pavements that have been laid now for about two years?

Mr. CAMPEN. I do not think those are my figures. I will say, though, that I believe it will be more than that, from the fact that we are paying now \$5.10 per cubic foot for stone in Colon, crushed rock.

MATERIAL AND SUPPLIES, WATER, AND PAVEMENTS.

The CHAIRMAN. You have estimated for material and supplies for water and sewer operation and paving repairs, Panama and Colon, \$18,000?

Mr. CAMPEN. Yes, sir. That includes, of course, the coal for operating the sewer system in the city of Colon. All the sewage has to be pumped, and that includes the cost of pumping and the coal delivered at the bins.

Mr. MADDEN. Where do you buy the crushed stone?

Mr. CAMPEN. That is furnished by the Division of Municipal Engineering, and the freight on that by the last bill was \$3.40 per cubic yard.

Mr. MADDEN. And the other \$2 for the stone and to crush it?

Mr. CAMPEN. Yes.

Mr. MADDEN. How much does it cost to haul it to the place where you use it?

Mr. CAMPEN. We haul it and drop it off there in making repairs. The team that I use for hauling coal in the times I am not hauling coal I use in the streets in these places.

The CHAIRMAN. You do not keep a separate account of that?

Mr. CAMPEN. Yes, sir; I do. I keep a daily cost report, so that I could give you the cost of daily maintenance separate from the cost of water and sewers.

Mr. MADDEN. Put the data concerning that in the record. Make a statement and put it in the record.

The CHAIRMAN. You want to know how much it costs him to use his team and distribute the stuff around the streets?

Mr. MADDEN. Yes.

Mr. MANN. You want to put in the record what it really costs to take stone out and crush it, and to deliver it on the tracks, and then do it for less than they charge for crushing here?

Mr. CAMPEN. I cannot give you the record of the cost.

Mr. MADDEN. You can tell what it costs you, how much the freight is, and how much you pay to the crusher. Who furnishes this? The Government of the United States?

Mr. CAMPEN. Yes, sir; the Government of the United States.

Mr. MADDEN. Put it into the record, please.

TRAVELING, MISCELLANEOUS, AND CONTINGENT EXPENSES.

The CHAIRMAN. You have an estimate here of \$3,000 for traveling, miscellaneous, and contingent expenses. What are the items that make up that estimate?

Mr. CAMPEN. The proportion of the railroad fare of the five inspectors is placed here, and the expenses, like buying alum for the filtration plant, and the percentage of the cost is divided between the Zone and the cities of Panama and Colon as to operation of the filtration plants, which are operated by the Division of Municipal Engineering.

The CHAIRMAN. You estimate for four engineers for the next fiscal year?

Mr. CAMPEN. I want to say that this estimate was made before the division was made in our work. This estimate was made to include the pumping station at Mount Hope, which is on the Zone, and which work is now performed by the Division of Municipal Engineering.

The CHAIRMAN. So that should not be included?

Mr. CAMPEN. Not exactly as it is. The aggregate amount on account of the increase in the cost of stone, I think, is too small.

Mr. MADDEN. What was paid for stone before?

Mr. CAMPEN. I think it was about \$3.

Mr. MADDEN. Three dollars delivered?

Mr. CAMPEN. Yes, I think it was.

Mr. MADDEN. And now the price is \$3?

The CHAIRMAN. Does that apply also to the six firemen, and \$12,000 for unskilled labor?

Mr. CAMPEN. It does not apply to the unskilled labor. We will cut down the cost. The engineer there at \$2,100 will be cut down, and the four engineers and six firemen will be cut down; but we will have to replace two oilers there, so that the aggregate reduction would be four engineers and one fireman.

The CHAIRMAN. But here on page 19 you have four engineers and six firemen, and \$12,000 for unskilled labor. Was not that unskilled labor employed heretofore in cleaning off and making trails and roads?

Mr. CAMPEN. No, sir. This work at Colon and Panama was only turned over to me on the 1st day of September; that is, the actual

operation; that is, the keeping it up at that time; and this estimate was made looking to a different division of work at that time.

Mr. Campen subsequently transmitted the following statement of the organization and estimate of the Division of Public Works:

ANCON, CANAL ZONE, November 13, 1907.

HON. JAMES A. TAWNEY,

Chairman Committee of Appropriations, Colon.

DEAR SIR: I beg to submit herewith for your information the organization of the Division of Public Works as made September 1, 1907, after the estimate now printed in the book was sent in. This shows the organization as it is at the present time and the additional that will be needed for the fiscal year 1908-9, as far as is known now.

Very respectfully,

GEO. L. CAMPEN,
Superintendent Public Works.

Estimate for the division of public works, department of civil administration, for the fiscal year 1907-8, after division of work made September 1, 1907.

	Account No. 42.	Account No. 43.	Paving, Panama.	Paving, Colon.	Account No. 39.	Account No. 167.	Total.
GENERAL OFFICE.							
1 Superintendent	\$2,000.00	\$1,200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$4,000.00
1 Chief Clerk	1,012.50	607.50	100.75	100.75	100.75	100.75	2,022.00
1 Clerk	525.00	375.00	75.00		450.00	75.00	1,500.00
4 Water Inspectors						4,800.00	4,800.00
PANAMA OFFICE.							
1 Accountant, C	1,440.00		180.00			180.00	1,800.00
1 Plumbing Inspector	1,980.00						1,980.00
1 General Foreman	1,548.00		387.00				1,935.00
1 Foreman	562.50		562.50				1,125.00
1 Clerk	1,200.00						1,200.00
1 Messenger	270.00		30.00				300.00
One-half Attendant Filter plant	900.00						900.00
One-third salary and supervision reservoir and pipe line	600.00						600.00
COLON OFFICE.							
1 Assistant Superintendent and Chief Plumbing Inspector	448.33	1,429.31		357.33	124.17	124.16	2,483.30
1 Clerk C		1,486.25		172.50	66.50		1,725.25
1 Plumbing Inspector		1,935.00					1,935.00
1 General Foreman		1,200.00		315.00			1,575.00
1 Foreman		675.00		675.00			1,350.00
2 Engineers		2,250.00					2,250.00
2 Firemen		900.00					900.00
1 Messenger		450.00			450.00		900.00
One-third, Mount Hope Pumping Plant		2,360.00					2,360.00
One-third salary, attendant filter		600.00					600.00
Total	12,486.33	15,528.06	1,535.25	1,820.58	1,391.42	5,479.91	38,241.55
SKILLED AND UNSKILLED LABOR.							
Operation and maintenance of water, sewers, and paving	7,500.00	8,000.00	1,500.00	1,500.00			18,500.00
MATERIAL, SUPPLIES, EQUIPMENT, AND CONTINGENT EXPENSE.							
Tools and extra parts	600.00	600.00	400.00	400.00			2,000.00
Electric lights and current	127.50	2,422.50					2,550.00
Stationery and office supplies	640.00	5,640.00	80.00	80.00	80.00	80.00	1,600.00
Traveling expenses	100.00	200.00				200.00	500.00
Miscellaneous expenses	866.00	866.00	108.33	108.33	108.32	108.32	2,166.50
Fuel		6,000.00					6,000.00
Portion of alum and sulphate	702.00	507.76					1,209.76
Incidentals	1,780.00	1,780.00	222.50	222.50	222.50	222.50	4,450.00
Total	4,876.10	13,016.86	810.83	810.83	410.82	610.82	20,536.26

Estimate for the division of public works, etc.—Continued.

SUMMARY.

	Account No. 42.	Account No. 43.	Paving, Panama.	Paving, Colon.	Account No. 39.	Account No. 167.	Total.
Salaries.....	\$12,486.33	\$15,528.06	\$1,535.25	\$1,820.58	\$1,391.42	\$5,479.91	\$38,241.55
Skilled and unskilled labor.....	7,500.00	8,000.00	1,500.00	1,500.00			18,500.00
Material, supplies, etc.....	4,876.10	13,016.86	810.83	810.83	410.82	610.82	20,536.26
	24,862.43	36,544.92	3,846.08	4,131.41	1,802.24	6,090.73	77,277.81
1 Water Inspector.....						1,200.00	1,200.00
Additional for fuel and rock.....		1,000.00					1,000.00
							79,477.81

Account No. 42.—Operation and Maintenance Waterworks and Sewers, Panama.

Account No. 43.—Operation and Maintenance Waterworks and Sewers, Colon.

Account No. 39.—Miscellaneous Public Improvements, Canal Zone.

Account No. 167.—Operation and Maintenance Waterworks, Canal Zone.

ADDITIONAL STATEMENT OF HON. JO. C. S. BLACKBURN, COMMISSIONER, ETC.

The CHAIRMAN. Governor Blackburn, will you kindly have prepared and sent to me a statement of the number of fires you have had on the Canal Zone in the last year, and the amount and value of the property destroyed?

Mr. BLACKBURN. With great pleasure, sir. I think I can probably have that for you before you leave the Isthmus. If not, I will lose no time in forwarding it to you at Washington.

COMPENSATION OF FIREMEN AND POLICEMEN.

The CHAIRMAN. I see there is an estimate here of 30 firemen, \$45,000. That is \$1,500 for each fireman?

Mr. BLACKBURN. Yes. We find it hard, Mr. Chairman, to keep efficient, competent men in two branches of the service here. One is the Fire Department, and the other is the Police Force.

The CHAIRMAN. Don't you think the salary of a fireman at \$1,500 is altogether out of proportion when compared with the salary of a policeman at \$1,200?

Mr. BLACKBURN. I do, sir. A first-class policeman heretofore began his work under his enlistment at \$75 a month. To-day, by the action of the Commission of recent date, he gets \$80 a month to begin with, for the first six months, and after that he gets \$90, and at the end of the year with meritorious service he gets \$100. That is the arrangement for first-class policemen. The fireman is paid more liberally on this basis than the policeman, unquestionably, but I think the policeman is underpaid rather than that the fireman is overpaid.

FIRE DEPARTMENT (AGAIN).

I would like to add just one single sentence to what I said this morning on the subject of the Fire Department inquiry, assuming that the Government has invested here somewhere from fifteen to twenty million dollars of money, eight millions being the closest estimate of the amount of money paid out for the buildings since we took hold of the property, and we bought as many from the French, in round numbers, as we have since built, some 2,200. Putting them at one-half of the cost of those that we have constructed would make \$22,000,000 for the buildings themselves. Now, when you take into

account the stock that you carry of every description necessary to carry on this work of building the Canal, I do not believe it would be a very extravagant estimate all around to put it at twenty million.

The CHAIRMAN. But, Senator, do you think that is a fair basis for figuring out the value of the Fire Department—the value of its service?

Mr. BLACKBURN. No.

The CHAIRMAN. These buildings, some of them, in fact many of them, have no fire in them at all?

Mr. BLACKBURN. No.

The CHAIRMAN. They are not as liable to catch afire as they would be in the States, where there would be fire in them most of the year?

Mr. BLACKBURN. I think that is fair. But on the other hand, Mr. Chairman, see how it is: These buildings are constructed of unusually inflammable material. They are not built of brick or stone. They are tinder boxes. Besides, the character of goods that you carry, with your kerosene and combustibles, adds immensely to the danger of fire as compared with business conditions in the States. As I said this morning, it is the policy of the Federal Government to carry no insurance, but to carry its own risks. What I have asked for here, the estimate of the Fire Department, can easily be reduced in the totals. It is \$100,000. It is the only insurance that the United States Government carries on its eighteen or twenty million dollars' worth of inflammable property.

Mr. GRAFF. Has experience shown you in any instance where they have saved property—where the Fire Department has saved property?

Mr. BLACKBURN. I thank you, sir, for that suggestion. Yes, there was a recent fire at our storehouse on Mount Hope, down the line. It was utterly impossible to conceive of conditions more disadvantageous to the Government in case of fire than obtained there at that time. That was at the organization, at the beginning of the Fire Department here, and yet I think you will find that it is attested by everybody then on the Zone—it was before my arrival—who had opportunity to be familiar with the facts that the service rendered by that one half-organized, newly-banded fire company at Corozal saved to the Government many times more than the cost of the maintenance of the Fire Department on the Zone.

The CHAIRMAN. Did we have water mains on the Zone at that time?

Mr. BLACKBURN. Yes, but we had no way to approach it with the apparatus, and it was not the fault of the Chief of the Fire Department, either, for he had begged and pleaded with the railroad company to lay a blind switch at merely nominal cost to enable him to get up to the Mount Hope warehouse with the steam engine. I would not trust my memory now to state the amount of oil that we had stored there in the buildings that abutted against this big warehouse, and yet the firemen did get up there, and did save it.

Mr. MANN. These buildings, Governor, that the Government owns, are all separated by some distance?

Mr. BLACKBURN. There is no uniform distance observed, Mr. Mann, in their construction.

Colonel GOETHALS. Thirty feet is required.

Mr. BLACKBURN. Thirty feet is the distance required.

Mr. MANN. Are there any less than 30 feet apart?

Mr. BLACKBURN. I do not know.

Mr. MANN. There are many more than that.

Mr. BLACKBURN. I think so.

Mr. MANN. So that you do not have the same conditions as are had elsewhere, and you do not think we ought to maintain a fire department here, especially for the sake of buildings that abut on each other outside of our territory in Panama? With the buildings separated, the cost of the Fire Department would be much higher here than that of a paid fire department in a community where the buildings abut?

Mr. BLACKBURN. Certainly.

Mr. GRAFF. There would be little hope of saving a building that was on fire here?

Colonel GOETHALS. Very little.

Mr. BLACKBURN. As I have stated, the largest fire that the Government here has ever been subjected to was the Mount Hope fire.

Mr. MANN. What time of year was that?

Mr. BLACKBURN. In April.

Mr. MANN. At that time everything down here is wet on top and saturated through the middle. [Laughter.]

Mr. BLACKBURN. That was at the close of the dry season. And yet, through the efforts of the Fire Department, half of that Mount Hope storehouse was saved.

Mr. GARDNER. Commissioner Blackburn, do you know whether there was ever a disastrous fire here during the French occupancy of the Zone?

Mr. BLACKBURN. I am not informed, Mr. Gardner, as to what their experience was.

Mr. GARDNER. These buildings of theirs stood here unoccupied, many of them, for fifteen years without being burned?

Mr. BLACKBURN. Yes, twenty; but I would say in that connection, Mr. Gardner, that my observation leads me to the conclusion that the French put up a very much more substantial and solid and durable style building than we would have.

Mr. GARDNER. But they were constructed of wood.

Mr. BAXTER. If you will excuse me, I would like to say that the whole city of Colon has been burned down three or four times in twenty years: practically the entire city.

The following additional documents were filed by Mr. Blackburn:

ISTHMIAN CANAL COMMISSION.
Ancon, Canal Zone, November 12, 1907.

SIR: I inclose herewith, for your information, a statement showing the equipment and personnel of the Canal Zone Fire Department as of October 31, 1907, a summary of the equipment and apparatus requisitioned for to be paid for from appropriations for the fiscal year 1908, and of the equipment, supplies, and apparatus for the fiscal year 1909.

Very respectfully,

JO. C. S. BLACKBURN.

Head of Department of Civil Administration.

HON. JAMES A. TAWNEY, *Ancon.*

[Statement showing the equipment and personnel of the Canal Zone Fire Department as of October 31, 1907; a summary of the equipment and apparatus requisitioned for to be paid for from appropriations for the fiscal year 1908, and of the equipment, supplies and apparatus estimated for the fiscal year 1909.]

At Cristobal the Department occupies a two-story building especially constructed for Fire Department purposes, providing room for the apparatus on the ground floor and quarters for the firemen on the upper floor. Thirteen paid

firemen are stationed at Cristobal, two of whom are detailed for line inspection duty during the day. One fireman, stationed at Mount Hope for the protection of the storehouse there, is nominally assigned to Cristobal. The actual strength at Cristobal is, therefore, 10 men.

The apparatus consists of 1 third-size double-acting Silsby steam fire engine, minimum capacity 600 gallons per minute; 1 chemical engine, with two 45-gallon tanks and 250 feet of chemical hose; 1 two-horse hose wagon, capacity 1,000 feet 2½-inch hose; 1 truss hook and ladder, equipped with 3 extensions ladders, 5 plain ladders, 2 roof ladders, 2 pomplier ladders, axes, picks, etc.; and 9 horses.

At Ancon the building is a two-story structure, built for the purpose for which it is occupied. The force consists of 5 firemen.

Apparatus consists of a combination hose and chemical wagon, capacity 1,000 feet of 2½-inch hose, 200 feet of chemical hose, one 35-gallon chemical tank; and 2 horses.

One paid fireman is stationed at each of the following points: Gorgona, Empire, La Boca, Las Cascadas, and Gatun. Two paid firemen are stationed at Culebra. Paid firemen are in charge of the volunteer companies at their stations.

At each place a two-story fire department building has been constructed, the ground floor being used for equipment and the upper floor for quarters for firemen.

The equipment at each of these points, as well as the points mentioned below where buildings have been constructed for the volunteer companies, consist as follows: Two hose reels, capacity 500 feet of 2½-inch hose and minor equipment.

In addition to the points named above, fire houses have been constructed at Paraiso, Pedro Miguel, and Corozal.

At Cristobal a 10-box Gamewell electric fire-alarm system has been installed—stations including Mount Hope on one side and the Colon Hospital on the other. The system is kept in order by the electrician attached to fire headquarters, who is included in the personnel above given as one of the firemen.

On October 31, 1907, 1,288 chemical extinguishers had been distributed throughout the Zone. These extinguishers are inspected on an average of once every two weeks, by paid firemen.

In addition to chemical extinguishers, hand-grenades are also placed in Government buildings—668 are in service at the present time.

There are 6,725 feet of unlined 2½-inch cotton hose in service attached to standpipe in the different buildings; and there are approximately 8,000 feet of 2½-inch rubber-lined hose in service on the apparatus.

New fire stations will be constructed at Gorgona, Empire, and Ancon, the expense to be defrayed from the appropriation available for the fiscal year 1908.

An additional paid department will be established at Ancon, in the vicinity of the Tivoli Hotel; and paid departments will be stationed at Culebra, Empire, and Gorgona—equipment to consist of a hose wagon, 2 horses and 4 firemen. The building at Culebra now used by the volunteers will be slightly altered, and used for the paid fire department. The apparatus for these four fire companies has been requisitioned for from the United States.

Automatic fire alarm and telegraph systems will be installed at Ancon, Gorgona, and Culebra-Empire. It is estimated that 16 auxiliary alarm boxes will be attached to the Ancon system, 4 to the Gorgona system, and 8 to the Culebra-Empire system.

The amount estimated for equipment and supplies for apparatus, including chemical extinguishers, for distribution for the fiscal year 1909, is \$10,000. The equipment necessary will include the purchase of hose, which deteriorates rapidly in the climate of the Isthmus; the repair and maintenance of the equipment; the purchase of horses; and replacing such apparatus as will inevitably be lost or destroyed while in use at fires.

— — —
ISTHMIAN CANAL COMMISSION,
Ancon, Canal Zone, November 12, 1907.

SIR: Agreeably to your request, I submit herewith a tabulated statement of all fires reported by the chief of the fire department in the Canal Zone or in United States property in the cities of Panama and Colon during the twelve months ended October 31, 1907. This statement shows the date of each fire, the place on the Isthmus at which it occurred, the character of the building, the value of the building, the value of the contents of the building, and the damage both to the building and to the contents, as well as the supposed cause of each fire.

You will note that there were in all 52 fires during the 12 months covered by this statement, resulting in an aggregate loss of \$156,889. It will also be noted that the value of the property threatened with destruction aggregated \$1,247,610. The statement does not include the fire in the city of Panama on March 26, resulting in a property loss of \$4,750, or fires at Colon on April 7 and April 28, the last of which resulted in a property loss of \$10,000. The Canal Zone fire department assisted in extinguishing both of these fires. No property of the United States was destroyed or endangered, but indirectly the Isthmian Canal Commission would have suffered great inconvenience had either of these fires developed into a conflagration of considerable size.

There have been three fires in the Canal Zone during the past year, which resulted in considerable loss of property. One of these was at the Mount Hope storehouse, and occasioned an estimated loss to the building and contents of \$110,000; approximately one-half of the storehouse was saved. A fire at Empire destroyed the hotel at that point, at an estimated loss of \$28,500, and a fire at Gorgona. In July, destroyed a building occupied as quarters, at a loss of \$6,900. In January a fire at Gorgona partly destroyed a building valued at \$2,300; the estimated loss was \$900.

The circumstances connected with these four fires illustrate the comparative efficiency of volunteer and professional fire departments. The fire at Gorgona in January of the present year, referred to above, occurred about five minutes past 2 in the afternoon. The alarm was promptly sounded, and four minutes after the alarm the paid firemen in charge of the volunteer company and 16 volunteers reached the burning building and had water on the blaze. Their prompt action resulted in the extinction of the fire before it had gained headway, and saved the building, which was a light frame structure, similar to all other buildings in the Canal Zone. Empire, like Gorgona, is at present protected only by a volunteer fire department. The fire in the Empire hotel broke out shortly after midnight on July 9. The paid fireman in charge of the volunteers was the first to discover the flames, and sounded an alarm. The members of the two companies were at that hour asleep in various sections of the town. One entire company was quartered in buildings adjoining the offices of the auditor and the disbursing officer, at a distance of one-quarter of a mile from the fire. It was necessary for them to dress, assemble, and drag their hose wagon to the fire, which occasioned a considerable delay. When at length the volunteers arrived on the scene and laid their hose, the fire had gained such headway that it was beyond their control, and the building and contents were a total loss. Had there been a paid department at this time, prepared to respond promptly to any alarm by day or night, it is not unreasonable to suppose that this fire would have been extinguished without material loss. The second fire at Gorgona (in July of this year) occurred in a building constructed to quarter four families. The alarm was sounded at 5.40 p. m., and the volunteer companies responded promptly but were unable to do more than protect the adjoining buildings. The building in which the fire originated, with its contents, was a total loss.

As compared with these three fires, which were handled by the volunteer fire companies, I invite your attention to the showing made by the paid department at Cristobal on the occasion of the fire in the Mount Hope storehouse April 1, 1907. This storehouse is at a distance of about a mile and a half from Cristobal. At the time of the fire it could be reached only by rail. The Chief of the Fire Department had repeatedly recommended the construction of a road between Cristobal and Mount Hope, and pending the completion of that road he had requested the installation of a spur track adjoining the Cristobal fire station, with an inclined approach, in order that it might be possible to promptly load the apparatus on flat cars in case of necessity. In spite of urgent recommendations, this spur track was not installed by the Panama Railroad Company. Owing to these circumstances there was a delay of approximately thirty minutes from the discovery of the fire to the arrival of the engine and hose cart at Mount Hope. At that time almost one-half of the large building had been consumed and the flames had gained tremendous headway. The firemen were also handicapped through the fact that standpipes adjacent to the portions of the building already consumed by the flames had burned and were discharging water, thereby greatly diminishing the pressure, which was at no time sufficient to throw a stream to the roof of the building. In spite of all this, the fire was extinguished and almost one-half of the building with its valuable contents was saved. The value of the property saved from destruction at this time alone was probably sufficient to cover all expenditures which have been made upon the fire department.

Owing to these object-lessons in the relative efficiency of paid and volunteer fire departments, it has been determined to establish an additional paid department at Ancon for the protection of Tivoli Hill, the new administration building and the adjacent properties, leaving the present Ancon department to protect the hospital grounds and the new settlement at East La Boca, and to establish similar departments at Culebra, Empire, and Gorgona, where the value of the buildings belonging to the Isthmian Canal Commission is sufficient to warrant a reasonable expenditure for fire protection. Each of these new departments will be equipped with a 2-horse hose wagon and manned by from four to five paid firemen.

While the attached tabulated statement indicates that fires in the Canal Zone are of frequent occurrence, it is proper to state that the energies of the Fire Department are, in large part, devoted to the prevention of fires rather than to extinguishing them when they occur. The Isthmian Canal Commission has adopted regulations relating to fire protection, which prescribe a minimum distance between buildings; prohibit the storage of oil in large quantities; provide for the protection of necessary standpipes and fire hydrants; and prescribe penalties for interference with fire-fighting appliances or appliances connected with the public water system. It is the duty of the Fire Department to ascertain, through periodical inspections, whether these regulations are strictly enforced. The Fire Department also maintains chemical fire extinguishers which are distributed in practically all buildings belonging to the Isthmian Canal Commission. These extinguishers are periodically inspected, and recharged when necessary. In October of this year 2,576 extinguishers were so inspected and 15 were recharged. The department also has charge of the fire hose on standpipes, which are constructed in connection with every large building, and sees that this hose is maintained in serviceable condition. The department also periodically inspects every building on the Isthmus belonging to the Isthmian Canal Commission or the Panama Railroad Company, and sees to it that inflammable material is not allowed to accumulate; that defective wiring is not installed; and that no other conditions are permitted to continue which would increase risk from fire. It is considered that this part of the work of the department is of equal value to the services rendered when fires occur.

When I appeared before the committee to-day a member of the committee expressed the opinion that the payment to a fireman of a salary of \$1,500 per annum was unreasonable and extravagant. As I stated orally, in reply to the opinion thus expressed, it has proved impossible to secure and retain firemen upon the Isthmus for less than this amount. I find on reference to the records that since January 1, 1907, 19 firemen have been appointed to the service. Of these, 9, or almost 50 per cent, have voluntarily resigned, 4 have been discharged, and 1 has been transferred to another department. The number and proportion of resignations are sufficient evidence, I think, to indicate that the service at the present salary of \$1,500 per annum is not especially attractive. In further illustration of this point I attach copies of an editorial from the Firemen's Herald, commenting upon the inducements offered by the Isthmian Canal Commission to firemen, a copy of a letter addressed to the Assistant to the Secretary of the Isthmian Canal Commission by the Chief of the Fire Department at Erie, Pa., a copy of a letter to the General Purchasing Officer from the editor of the Firemen's Herald, and a copy of a letter to the Isthmian Canal Commission from the Chief of the Fire Department at Paterson, N. J.—all in the same connection.

You will note the statement in the Firemen's Herald, that "the inducements of the Commission are not alluring to firemen of the larger cities;" the statement of the editor of this paper, in his letter, that firemen in cities of 30,000 inhabitants are too well paid to quit the service, and only those discharged for cause will be liable to apply for positions; and the statement by the chief of the Patterson fire department, that firemen in his city are paid \$1,100 per annum, with "days off" and vacation amounting to seventy-six days annually. The chief of the fire department of Erie, Pa., is still more emphatic in his statement relative to the terms offered by the Isthmian Canal Commission, and alleges that firemen at Erie are paid larger salaries and granted more privileges than on the Canal Zone.

In conclusion permit me to reiterate my statement before the committee, that the property of the Isthmian Canal Commission exposed to fire risks on the Isthmus of Panama probably aggregates \$20,000,000 in value; being \$8,000,000 the actual cost of construction of new buildings erected by the Commission, and \$12,000,000 the estimated cost of buildings purchased from the French Canal

Company, and the contents, in machinery, material and supplies, of buildings of both classes. The estimated cost of the Fire Department for the current year, including the construction of new engine houses and the purchase of new apparatus and the installation of alarm systems, is, in round numbers, \$100,000, or one-half of 1 per cent of the value of the property protected.

All of the buildings of the Commission are light, frame structures of the most inflammable character, and during the four months of the year in which there is no rainfall they become as dry as tinder. The line of the Canal is one network of railroad tracks, over which locomotives are constantly passing; and a spark from any of these engines can result in a conflagration which in a few minutes would destroy property equivalent to the annual cost of the Fire Department.

Fire insurance rates in the city of Panama are from 2 to 4 per cent of the value of the property protected. In the city of Colon rates are from 6 to 8 per cent, with increases in both cities for unusually dangerous risks. When this fact is taken into consideration it would appear a misgilded economy to cut down the Fire Department, which is the only protection afforded the property of the United States upon the Isthmus, and which costs annually only one-half of 1 per cent of the value of the property protected.

Very respectfully,

JO. C. S. BLACKBURN,

Head of Department of Civil Administration.

HON. JAMES A. TAWNEY,

Chairman House Committee on Appropriations, Ancon, Canal Zone.

Fires in the Canal Zone and in United States property in Panama and Colon reported by the chief of the fire department during the twelve months ended October 31, 1907.

Town.	Date.	Description of building.	Value.		Damage.		Cause of fire, and remarks.
			Building.	Contents.	Building.	Contents.	
Colon.	1906.	(There were no fires during the month of November.)					
Do.	Dec. 18	Detention camp, passenger building.					Cigarette stub.
Empire.	Dec. 26	Hospital kitchen.			\$100		Overheated stove.
La Boca.	Dec. 25	House No. 107.				\$10	Defective oil stove.
	Dec. 28	Shipway of Panama Railroad Co.					Unknown.
Gorgona.	1907.						
Do.	Jan. 4	Two-story office building.	\$2,000	\$300	800	100	Careless handling of kerosene.
	Jan. 21	Two-story frame house.	7,500	1,050		12	Contact of mosquito netting with lamp.
La Boca.	do.						
Empire.	Jan. 28	Panama R. R. freight car, with load of oil.				2	Spark from passing engine.
Empire.	Feb. 28	Lirio planing mill.	10,000	50,000		10	Do.
Padre Miguel.	Mar. 8	Isthmian Canal Commission Hotel.	15,000	5,000		5	25-pound pot of lard ignited.
Culebra.	Mar. 12	Storehouse.	3,000	20,000	10		Unknown.
La Boca.	Mar. 16	Rubbish near storehouse.		3,600			Do.
Culebra.	Mar. 18	Panama R. R. freight car, with load of oil.		100		100	Spark from passing engine.
Do.	Mar. 21	Brush fire near the magazine vault.					Do.
Mount Hope.	Apr. 1	Pile of packing cases near hotel.	65,000	500,000	35,000		Do.
Cristobal.	Apr. 7	Mount Hope storehouse.				75,000	Unknown.
Gatun.	Apr. 8	Dry dock coal bin.	10,000		10		Spontaneous combustion.
		House (Isthmian Canal Commission quarters).		10,000			Unknown.
Ancon.	May 1	Bachelor quarters.	10,000	500	100		Lamp explosion.
Empire.	do.	Mattresses near freight depot.					Spark from passing engine.
Culebra.	May 2	Lumber yard.		300		60	Do.
Ancon.	May 9	Rubbish near engine house.					Unknown.
Do.	May 14	Chapel.	2,000	2,000	10		Spontaneous combustion.
Cristobal.	May 17	One-story frame house.	2,500	1,000	25		Defective oil stove.
Empire.	May 19	Two-story frame building.	5,000	1,500		30	Lamp falling on bed.
Paraiso.	May 23	Post-office.	2,000	2,500			Lamp explosion.
Maned.	June 8	Labor barracks.	500	150	650	5	Use of gasoline to kill vermin.
Empire.	June 11	Two-story frame building.	2,800	200		5	Overturned lamp.
Ancon.	June 13	Ward 16, Ancon Hospital.	4,000	1,000	5,000		Defective wiring.
La Boca.	June 14	Docks.					Do.
Gorgona.	July 2	House No. 116.	6,500	400	6,500	400	Unknown.
Empire.	July 9	Isthmian Canal Commission Hotel.	16,500	12,000	16,500	12,000	Do.
Culebra.	July 23	do.	25,000	6,000	30,000		Defective stovepipe.
Do.	July 8	do.	25,000	6,000	30,000		Defective stovepipe, as on July 8.
Paraiso.	July 26	do.	3,000	500	3,500		Lamp explosion.
Do.	July 15	House No. 14.	3,000	500	3,500		Do.
	July 24	House No. 24.	3,000	500	3,500		Do.

Pedro Miguel.....	July 29	Box-car storehouse for waste oil.	500	500	10	Unknown.
La Boca.....	July 5	Mess hall.....	6,800	6,800	60	Overheated stove.
Do.....	July 7	do.....	6,800	6,000	5	Overheated stove, as on July 5.
Gatun.....	Aug. 13	Rubbish heap near new building.				Unknown.
Las Cascadas.....	Aug. 3	Office building.....	35,000	15,000		Do.
Empire.....	Aug. 14	Isthmian Canal Commission Hotel.			5	Overheated stove.
Do.....	Aug. 24	Empire shops.....				Oil waste, spontaneous combustion.
Ancon.....	Aug. 6	Insane ward.....				Unknown.
Bas Obispo.....	Sept. 3	Bachelor quarters, No. 33.....	6,000	6,000		Contact of mosquito bar with lamp.
Empire.....	Sept. 6	Frame building.....	200	180	5	Lamp explosion.
Culebra.....	do.....	Fumigating house.....	6,000	600		Unknown.
Pedro Miguel.....	do.....	Bachelor quarters, No. 28.....	6,000	6,000		Do.
Ancon.....	Sept. 13	Bachelor quarters, No. 37.....	225,000	60,000		Careless burning of waste lumber.
Do.....	Sept. 14	Number pla near new governor's residence	7,000	3,000		Drunk guest set fire to bed.
Panama.....	Sept. 16	Hotel.....	2,910	7,000	3,000	Unknown.
Do.....	Sept. 29	Building belonging to railroad company.....		3,060		Attempt to fill lighted lamp.
Pedro Miguel.....	Oct. 2	Type 17, one-family house.....				
Total.....			1,247,610	66,060	90,829	

HEADQUARTERS FIRE DEPARTMENT,
OFFICE OF THE CHIEF ENGINEER,
Paterson, N. J., August 20, 1907.

GENTLEMEN: Yours of the 10th received, and in reply would state that the chance of getting any firemen from this city is very slim. The men in the department are paid a salary of \$1,100 per annum after service of two years, and the days off and vacation allowed amount to seventy-six days annually.

The age limit is all right, but you ask for appointees to be not less than 5 feet 8 inches in height to 6 feet 2. Would rather have firemen 5 feet 6 inches and not over 6 feet, as they are closer to their work in handling hose—nearer the ground.

Only three men have resigned from the department in the last twelve years, so that you can readily see that the men are perfectly contented with their positions.

Respectfully,

JOHN STAGG,
Chief Fire Department.

ISTHMIAN CANAL COMMISSION,
Washington, D. C.

ERIE FIRE DEPARTMENT,
Erie, Pa., August 28, 1907.

DEAR SIR: Your letter of August 10, 1907, to hand and contents noted, and in reply I wish to say that I do not know of any ex-firemen in this city eligible, as those who have recently retired from this department did so to enter into business for themselves.

Your Commission evidently, from the inducements offered, does not estimate the value of a good fireman, because larger salaries and more privileges are granted to them in this city. The firemen in this department are allowed three days' leave of absence each month and ten days' vacation annually with pay, without taking chances of getting the broken-bone fever and turning yellow and being shipped home in cold storage.

They used to extinguish fires in the cities years ago voluntarily, but now days they are out for the money.

I will make you a proposition to establish fire departments on the Isthmus. I have had twenty-three years' experience as a fireman and have passed through all of the branches of the service and have been chief of this department for the past fourteen years. I am familiar with all the implements used for extinguishing fires. Before I entered the fire department I was a marine engineer, and I hold a Government certificate to that effect.

I have operated dipper and sucker dredges. My present salary is \$2,000 per annum. If you will offer me \$8,000 per year with similar conditions stated in your letter you may have my services, and for \$2,000 extra per annum I will bring the stenographer who wrote this letter, and who has had seven years' experience as my secretary, and who is a graduate of one of our high schools, and who is familiar with all the clerical branches of a fire department, and with a little better inducement for the regular firemen I might be able to bring with me 10 or 12 good men from this department.

Trusting you will give my proposition due consideration, and awaiting an early reply,

Very respectfully, yours,

JOHN J. McMAHON,
Chief of Fire Department.

Mr. RUFUS A. LANE,
*Assistant to the Secretary,
Isthmian Canal Commission, Washington, D. C.*

THE FIREMAN'S HERALD,
227 Broadway, New York, August 17, 1907.

DEAR SIR: Yours received. Will print the matter you send gratis. You make a mistake in limiting men to cities of 30,000 inhabitants. The firemen of such large cities are too well paid to quit the service, and only those discharged for cause will be liable to apply for positions.

Again, the ablest firemen are not all in the largest cities. You can probably get more and better men for your service in some of the smaller cities and towns, or even in volunteer departments, than in the large cities.

Yours,

H. H. EASTERBROOK, *Editor.*

H. F. HODGES, *Esq.*

FIREMEN FOR THE CANAL ZONE.

[From Fireman's Herald, September 14, 1907.]

The Isthmian Canal Commission, according to newspaper reports, is having little success in obtaining firemen from the large cities for its fire service in the Canal Zone on the Isthmus of Panama. This is not at all surprising. The conditions are such as to prevent those best fitted for that service from receiving appointment, and firemen of the largest cities will not give up better positions therefor. The conditions read like rules of civil service commissioners, who know nothing of the requirements of the fire service. It is a mistake to suppose that only firemen of two years' experience in cities of 30,000 or more population are fitted for the Canal Zone service. They are really the least fitted, as the character of the buildings in the cities and towns of the Isthmus is more like that in cities of less than 30,000 than in those of greater size. A successful fireman in a large city is not always a success in a smaller one, and vice versa. Firemen from large American cities would not long be content in the small cities and towns on the Isthmus, whereas those of our smaller cities and towns, being more used to small places, would be much better satisfied down there, and would more readily understand the requirements of the local service. Furthermore, the inducements of the Commission are not alluring to firemen of the largest cities, while the physical and other requirements are absurd for the service to be performed.

Statement showing number of appointments and separations from service, by name, in the fire department, Department of Civil Administration, during the present year (1907).

APPOINTMENTS.

Name.	Position.	Date.	Whence appointed.
Walter Albin.....	Fireman.....	Jan. 10, 1907	By transfer.
Addison Bligh.....	Clerk.....	Oct. 1, 1907	By transfer.
Harry M. Badhorn.....	Fireman.....	Aug. 27, 1907	United States.
James J. Boutty.....	Blacksmith.....	June 1, 1907	Isthmus.
Henry S. Cabell.....	Clerk.....	Oct. 1, 1907	By transfer.
William J. Cuff.....	Fireman.....	Oct. 1, 1907	Isthmus.
Anton Eskeson.....	Fireman.....	Sept. 24, 1907	Isthmus.
Paul H. Fegam.....	Fireman.....	Aug. 27, 1907	United States.
Harry H. Haldeman (reappointed).....	Fireman.....	Mar. 18, 1907	Isthmus.
George A. Howard.....	Fireman.....	May 26, 1907	By transfer.
Sam Jones.....	Fireman.....	July 14, 1907	United States.
Oscar Koenig.....	Fireman.....	May 6, 1907	United States.
William McGuire.....	Fireman.....	Aug. 10, 1907	United States.
Frank M. Reardon.....	Fireman.....	Sept. 7, 1907	United States.
Duke A. Rudy.....	Fireman.....	Aug. 27, 1907	United States.
Daniel F. Sanders.....	Fireman.....	Aug. 12, 1907	United States.
A. B. S. Stimson.....	Fireman.....	Sept. 24, 1907	United States.
Henry A. Witte.....	Fireman.....	Aug. 12, 1907	United States.
Michael Atkins.....	Fireman.....	Oct. 1, 1907	Isthmus.
Fred J. Bettinger.....	Fireman.....	Apr. 27, 1907	United States.
Amos N. Therrien.....	Fireman.....	May 6, 1907	United States.

SEPARATIONS FROM SERVICE.

Name.	Position.	Date.	Manner of separation.
Michael Atkins.....	Fireman.....	Oct. 27, 1907	Discharged.
Fred J. Bettinger.....	Fireman.....	June 30, 1907	Resigned.
William W. Clark.....	Fireman.....	Apr. 9, 1907	Resigned.
Anton Eskeson.....	Fireman.....	Oct. 27, 1907	Discharged.
Harry H. Haldeman.....	Fireman.....	Jan. 7, 1907	By transfer.
William A. Knowlton.....	Fireman (Captain).....	Apr. 9, 1907	Resigned.
Edgar H. Hale.....	Clerk.....	Dec. 14, 1907	Resigns.
Harry B. Kramer.....	Fireman.....	Apr. 23, 1907	Resigned.
John E. Nelson.....	Fireman.....	Mar. 17, 1907	Resigned.
Harry J. Machler.....	Fireman.....	Oct. 4, 1907	Discharged.
Duke A. Rudy.....	Fireman.....	Nov. 17, 1907	Resigns.
B. A. Schofield.....	Fireman.....	Sept. 23, 1907	Resigned.
A. B. S. Stimson.....	Fireman.....	Nov. 2, 1907	Discharged.
Amos N. Therrien.....	Fireman.....	June 30, 1907	Resigned.
Clarence E. Wilcken.....	Fireman (Captain).....	Dec. 2, 1907	Resigns.

Total number of appointments during 1907, 21. Total number of separations during 1907, 15.

ISTHMIAN CANAL COMMISSION,
Ancon, Canal Zone, November 17, 1907.

SIR: At the hearings before the subcommittee of the House Committee on Appropriations, conducted at Ancon on the 12th instant, you pointed out that in the estimates submitted for the Department of Revenues a deduction had been made of \$75,000, the estimated income from the postal system, and that no estimates were submitted for the Canal Zone public school system or for public works in the Canal Zone. You pointed out further that it would be necessary to secure an appropriation from Congress covering these items, unless section 2 of the Appropriation Act of March 4, 1907, were reenacted for the fiscal year 1909.

The estimates of the Department of Civil Administration for the fiscal year 1909 were prepared with the understanding that section 2 of the act of March 4, 1907, would be reenacted either in its present form or with slight modifications.

I submit herewith an itemized statement of the Canal Zone revenues accrued during the six months ended October 31, 1907. The total revenues in that period aggregated \$120,780.95. If there were no increase of income during the fiscal year 1909 the Zone revenues would aggregate approximately \$240,000; but, allowing for natural expansion, it is estimated that the revenues for that year will not be less than \$275,000. To this total the postal revenues, it is estimated, will contribute \$75,000, and the remaining sources of revenue \$200,000.

Section 2 of the Act of March 4, 1907, reads as follows:

"All funds collected by the government of the Canal Zone from rentals of public lands and buildings in the Canal Zone and the cities of Panama and Colon, and from the Zone postal service, and from court fees and fines, and collected or raised by taxation in whatsoever from under the laws of the government of the Canal Zone, are hereby appropriated until and including June thirtieth, nineteen hundred and eight, as follows: The revenues derived from the postal service to the maintenance of that service; the remaining revenues, after setting aside a miscellaneous and contingent fund of ten thousand dollars, to the maintenance of the public school system in the Zone, and to public improvements within the Zone. A detailed and classified statement of all receipts and expenditures without the duplication of items under this paragraph shall be submitted to Congress after the close of the fiscal year nineteen hundred and eight."

In appropriating for the fiscal year 1909, I believe that the Zone revenues may safely be made available for the payment of certain items in addition to those included in the foregoing section quoted from the act of March 4, 1907. It would seem reasonable, for instance, that the expenses of collecting these local revenues should be defrayed from the revenues collected. I therefore recommend that District Tax Collectors and their necessary assistants be paid from the Zone funds. I also recommend that District Judges be paid from the Zone funds. The salaries of these judges can be met from the fines and costs which they collect, leaving an ample surplus of revenue.

I also recommend that the Zone funds be made available for the cost of maintenance in the hospitals of the Isthmian Canal Commission of paupers in the Canal Zone who may require medical treatment and who are not in the employ of the Isthmian Canal Commission. If these recommendations are adopted the following items may be stricken from the estimates of the Department of Civil Administration, on page 68, under the heading "Judiciary:—"

1 district court judge.....	\$2,750
4 district court judges, \$2,400 each.....	9,600

and on page 69, under the heading "Collection of taxes,"

4 district collectors, \$2,100 each.....	8,400
4 inspectors, \$1,500 each.....	6,000
4 clerks, \$1,200 each.....	4,800
4 copyists, \$900 each.....	3,600

Or a total of.....	35,150
--------------------	--------

The section to be inserted in the appropriation act for the fiscal year 1909, in lieu of section 2 in the appropriation act of March 4, 1907, should read as follows:

"Any unexpended balance of Zone funds on hand June 30, 1908, and all funds to be collected by the government of the Canal Zone from rentals of public lands and buildings in the Canal Zone and the cities of Panama and Colon, and from the Zone postal service, and from court fees and fines, and collected or raised by taxation in whatsoever form under the laws of the government of the Canal Zone, are hereby appropriated, until and including June 30, 1909, as follows: The revenues derived from the postal service to the maintenance of that service; the remaining revenues, after setting aside a miscellaneous and contingent fund of ten thousand dollars, to the maintenance of the public school system in the Zone, to the construction and maintenance of public improvements within the Zone, to the maintenance of district courts, to the maintenance of Zone charity patients in the hospitals of the Isthmian Canal Commission, and to the payment of the salaries of district tax collectors and their necessary assistants. A detailed statement of all receipts and expenditures under this paragraph shall be submitted to Congress after the close of the fiscal year 1909."

I inclose herewith an estimate of expenditures from the Canal Zone funds during the fiscal year 1909, presupposing that Congress will appropriate the Zone revenues as I have above recommended. You will note that in this estimate only \$53,215 is allowed for public works. No more than this will be available from the current revenues for the year, but since it is certain that there will be an unexpended balance on hand at the close of this present fiscal year, the amount available for the construction and maintenance of public works in the Canal Zone can be increased to meet all reasonable requirements.

Very respectfully,

JO. C. S. BLACKBURN,

Head of Department of Civil Administration.

Hon. J. A. TAWNEY,

Chairman House Committee on Appropriations,

Washington, D. C.

(Through the Chairman of the Isthmian Canal Commission.)

Government of the Canal Zone, statement of accrued revenues.

May, 1907:

Stamps	\$3, 184. 35
Money-Order Fees	1, 066. 35
Land and Building Rentals	162. 02
Internal Revenue	472. 00
Circuit Court Fines and Costs	257. 55
Taxes, Administrative Districts	5, 750. 56
Fines, Administrative District Courts	2, 014. 00
Costs, Administrative District Courts	775. 40
Burial Permits	67. 00
Hunting Permits, etc.	47. 67
Union Oil Company, Collection	500. 00
Total	<u>14, 296. 90</u>

June, 1907:

Stamps	3, 102. 14
Money-Order Fees	1, 174. 99
Land and Building Rentals	401. 41
Internal Revenue	590. 50
Circuit Court Fines and Costs	128. 28
Taxes, Administrative Districts	9, 916. 73
Fines, Administrative District Courts	1, 831. 35
Costs, Administrative District Courts	629. 95
Burial Permits	73. 00
Hunting Permits, etc.	249. 00
Union Oil Company, Collection	1, 000. 00
Total	<u>19, 097. 35</u>

438 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

July, 1907:

Stamps	\$3,464.88
Money-Order Fees	1,444.64
Land and Building Rentals	4,014.09
Internal Revenue	20,706.30
Circuit Court Fines	47.00
Circuit Court Costs	368.90
Taxes, Administrative Districts	5,772.69
Fines, Administrative District Courts	1,914.50
Costs, Administrative District Courts	662.70
Burial Permits	125.00
Hospital Revenues, Credit	5.70
Hunting Permits, etc	166.00
Total	38,686.70

August, 1907:

Stamps	2,815.76
Money-Order Fees	1,256.02
Land and Building Rentals	865.97
Internal Revenue	409.82
Circuit Court Fines	50.00
Circuit Court Costs	317.51
Taxes, Administrative Districts	5,063.29
Fines, Administrative District Courts	1,977.10
Costs, Administrative District Courts	587.95
Burial Permits	187.00
Hunting Permits, etc	190.00
Union Oil Company, Collection	500.00
Total	14,220.42

September, 1907:

Stamps	3,903.89
Money-Order Fees	1,377.79
Land and Building Rentals	587.59
Internal Revenue	204.46
Circuit Court Fines	398.00
Circuit Court Costs	320.50
Taxes, Administrative Districts	6,161.35
Fines, Administrative District Courts	1,893.20
Costs, Administrative District Courts	643.15
Burial Permits, Credit	59.00
Hunting Permits, etc	190.71
Union Oil Company, Collection	500.00
Total	16,121.64

October, 1907:

Stamps	4,142.55
Money-Order Fees	1,442.32
Land and Building Rentals	2,909.86
Internal Revenue	271.40
Circuit Court Fines	259.77
Circuit Court Costs	224.80
Taxes, Administrative Districts	5,707.01
Fines, Administrative District Courts	2,082.40
Costs, Administrative District Courts	572.00
Burial Permits	76.00
Hunting Licenses, etc	170.33
Union Oil Company, Collection	500.00
Total	18,357.94

Grand total 120,780.95

Estimated expenditures from Canal Zone funds, fiscal year 1909.

Contingent Fund	\$10, 000
Schools:	
Superintendent	\$3, 000
Clerk	1, 800
16 teachers at \$110	15, 840
8 teachers at \$90	6, 480
36 teachers at \$60	19, 440
1 messenger	600
Janitor service	3, 500
Text-books, stationery, etc.	5, 000
Miscellaneous (freight, cartage, etc.)	500
Repairs to furniture and buildings	5, 000
New buildings	35, 000
Total	96, 180
1 Senior District Judge	2, 750
District Judges (4 at \$2,400)	9, 600
Tax Collectors (4 at \$2,100)	8, 400
Inspectors (4 at \$1,500)	6, 000
Clerks (4 at \$1,200)	4, 800
Copyists (4 at \$900)	3, 600
Maintenance 50 charity patients at 30 cents per diem	5, 475
Postal system (entire estimated postal revenues)	75, 000
Public Works (construction and maintenance)	53, 215
Total	275, 000
Estimated revenues	\$275, 000
Teachers are paid by the month during a school year of 9 months.	

ANCON, November 17, 1907.

SIR: Agreeably to your request expressed at the hearings before the subcommittee of the House Committee on Appropriations, conducted at Ancon on the 12th instant, I send you herewith a statement of the amounts expended from the appropriation for the Department of Civil Administration of the Isthmian Canal Commission from July 1, 1907, to October 31, 1907, inclusive. This statement was furnished me by the disbursing officer of the Isthmian Canal Commission, and is as accurate as the circumstances will permit. Nevertheless, it is misleading, inasmuch as various items of expenditure during the period from July 1 to October 31, 1907, have not yet been entered in the accounts, and do not, therefore, appear in this statement.

The total of expenditures as shown by the statement—\$182,010.23—is considerably less than the actual total expenditures. I have no means of determining accurately what these total actual expenditures have been.

I also submit a careful estimate of the expenditures of the Department of Civil Administration for the fiscal year 1908, based on the present pay rolls and the probable cost of new buildings, material, supplies, and equipment, of which the construction or purchase has already been authorized or is contemplated.

Very respectfully,

JO. C. S. BLACKBURN,
Head of Department of Civil Administration.

HON. J. A. TAWNEY,
Chairman House Committee on Appropriations, Washington, D. C.

440 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Statement of amounts expended from appropriation for Department of Civil Administration from July 1, 1907, to October 31, 1907, inclusive.

Disbursed by.	Material, equipment, new buildings, etc.	Pay officers and employees.	Skilled and unskilled labor.	Total.
July, 1907.				
E. J. Williams.....	\$506.91	\$29,170.72	\$1,458.12	\$31,135.75
J. G. Jester.....	5,277.15			5,277.15
Total.....	5,784.06	29,170.72	1,458.12	36,412.90
August, 1907.				
E. J. Williams.....	3,827.52	34,180.61	570.60	38,578.73
J. G. Jester.....	12,140.69			12,140.69
Total.....	15,968.21	34,180.61	570.60	50,719.42
September, 1907.				
E. J. Williams.....	1,429.87	4,436.35	233.48	6,099.70
M. C. Gay.....	1,669.61	35,865.99	351.12	37,886.72
J. G. Jester.....	7,748.63			7,748.63
Total.....	10,848.11	40,302.34	584.60	51,735.0
October, 1907.				
M. C. Gay.....	1,418.55	36,728.41	662.81	38,809.77
J. G. Jester.....	4,303.09			4,303.09
Total.....	5,721.64	36,728.41	662.81	43,112.86
Grand total.....	38,322.02	140,382.08	3,306.13	182,010.23

Department of Civil Administration, estimate of expenditures, fiscal year 1908.

	Salaries of officers and employees.	Skilled and unskilled labor.	Material, supplies, equipment, new buildings, and contingent expenses.	Total.
Executive Office.....	\$44,291.70		\$6,500.00	\$50,791.70
Division of Public Works.....	38,183.30	\$18,500.00	20,536.26	77,219.56
Fire Department.....	63,448.67	420.00	51,099.65	114,968.32
Prosecuting Attorney's Office.....	7,200.00		1,000.00	8,200.00
Judiciary.....	42,242.50		2,400.00	44,642.50
Police Department.....	195,395.00		57,112.00	252,507.00
Department of Revenues.....	145,788.33		86,300.00	232,088.33
Total.....	536,559.50	18,920.00	224,937.91	780,417.41

* It is estimated that the revenues from the postal service will be about \$54,000. They will be devoted to the maintenance of that service, and the above estimate for the Department of Revenues may, therefore, be reduced by that amount.

ISTHMIAN CANAL COMMISSION,
Ancon, C. Z., November 17, 1907.

SIR: Agreeably to your request expressed at the hearings before the subcommittee of the House Committee on Appropriations, held at Ancon on the 12th instant, I send you herewith a copy of the estimates used in determining the rate to be charged for water in the city of Panama, and a copy of similar estimates used in determining the rate to be charged for water in the city of Colon.

I also inclose herewith a copy of the printed rates, rules, and regulations for the use of the sewers and of water from the public water system in the city of Panama, and a copy of similar rates, rules, and regulations for the city of Colon.

Very respectfully,

JO. C. S. BLACKBURN,
Head of Department of Civil Administration.

HON. J. A. TAWNEY,
Chairman House Committee on Appropriations,
Washington, D. C.

Estimates for increase of water rents to cover cost and maintenance of paving for city of Panama for period of ten years.

Estimated cost of Panama Water and Sewer Plant.....	\$625,000
Interest on cost for twenty-five years, at 2 per cent.....	312,500
Estimated cost of replacement, thirty years.....	450,000
Interest on cost of replacement ten years, at 2 per cent.....	90,000
Operation and maintenance \$20,000 year.....	1,000,000
Cost of paving, plus Coco Grove and Guachapoli.....	450,000
Interest on cost twenty-five years, at 2 per cent.....	225,000
Maintenance and repairs ten years, at 2½ per cent per year.....	112,500
Interest on \$112,500 for five years, at 2 per cent.....	11,250
Total to be raised in fifty years.....	3,276,250
Amount to be raised in one year.....	65,525

Consumption of water per day, 800,000 gallons.

For 365 days, 292,000,000 gallons.

65,525 divided by 292,000,000 equals \$0.23— per 1,000 gallons.

Rates, rules, and regulations for the use of sewers and water from the public water system in the city of Panama.

DECREE NO. 23 OF 1907.

[Issued July 1.]

The President of the Republic of Panama, in the exercise of the authority conferred upon him by law, and in consideration of the Executive Order of the Government of the Canal Zone, reading, literally, as follows:

"Whereas, Article VII of the Convention of November 18, 1903, between, the Republic of Panama and the United States of America provides that the Government of the United States, its agents or nominees, shall be authorized to impose and collect water rates and sewerage rates which shall be sufficient to provide for the payment of interest and the amortization of the principal of the cost of all works necessary and convenient for the sanitation and distribution of water in the cities of Panama and Colon;

"And whereas, it has been decided that the cost of paving and macadamizing the streets of the city of Panama is a work of sanitation, the cost of which should be amortized under the provisions of the aforesaid article:

"And whereas, to provide for the amortization of the cost of the said water, sewer, and paving systems of the city of Panama it has become necessary to increase the water rates in the city of Panama;

"Now, therefore, by authority of the President of the United States, and with the approval of the Secretary of War; it is

Resolved, That the following Regulations respecting the use of water from public mains and the collection of water rates in the city of Panama shall be in force on and after July 1, 1907:

"SECTION 1. Application for water and sewer must be made at the office of the Superintendent of Public Works of the Isthmian Canal Commission. The owner of the property, or his duly authorized agent, must sign the application.

"SEC. 2. All contracts for water and sewer shall continue in force from year to year unless a notice is given in writing by the owner or the agent of the owner to terminate the contract, and the privilege granted of paying the water rents quarterly, under these rules, shall not be construed to mean for any less period of time.

"SEC. 3. All water will be delivered through meters. No connection shall be made or maintained at a charge of less than \$6 silver per quarter, for which 10,000 gallons may be used during the quarter without further cost. All water used in excess of 10,000 gallons per quarter shall be charged at the rate of 60 cents silver per 1,000 gallons, or any fraction thereof, including and above 500 gallons.

"SEC. 4. Meters of suitable size will be supplied by the Isthmian Canal Commission, and shall remain the property of the Isthmian Canal Commission until the conditions of amortization are completed.

"Sec. 5. Meters will be read each quarter and bills presented, based on the nearest thousand gallons, on the 1st day of January, April, July, and October for water used. If paid within fifteen days from date of bill at the office of the Superintendent of Public Works, a discount of 10 cents per 1,000 gallons will be given. All bills must be settled within forty-five days from date of same. If not paid within forty-five days, the water will be cut off and the water rents will be reported to the Chief Executive of the Canal Zone for collection by due process of law, and all charges for legal prosecution will be assessed against the property and become a lien thereon.

"Sec. 6. No rebate for any unexpired portion of the contract will be allowed.

"Sec. 7. No owner or tenant of any premises supplied with water under the contract will be allowed to supply other persons or families of other premises, except as provided for in said contract.

"Sec. 8. All plumbing must be done according to the rules and regulations governing the sanitary installation of water and sewers for the city of Panama.

"Sec. 9. Meters shall be placed in a pit in the sidewalk space between the curb and the building lines. The meter pit shall be covered with a cast-iron box, and cover set so that the cover shall be in the same plane as the surface of the adjacent walks.

"Sec. 10. If the meter gets out of order, or fails to register, the consumer will be charged at the average rate of consumption as shown by the meter when in order.

"Sec. 11. All water that passes through the meter in excess of 10,000 gallons per quarter will be charged for, whether the water is used or wasted.

"Sec. 12. Notice of rents due will be published in the city papers, and notices will be left at the houses where the water is used, but failure to receive such notice will not operate to excuse or extend the payment beyond the regular time.

"Sec. 13. No person, except the Superintendent of Public Works or his duly authorized representative, shall open or close the stopcocks or valves in any of the water mains or service pipes.

"Sec. 14. No plumber, consumer, or other unauthorized person shall turn the water on or off any premises, whether old or new supply.

"Sec. 15. The Isthmian Canal Commission shall not be held accountable for any damage that may result from leaks, burst pipes, or from any other cause, and the consumer must pay for all water passed through the meter in excess of 10,000 gallons per quarter, at the rate of 60 cents silver per 1,000 gallons.

"Sec. 16. When leaks occur they must be immediately repaired by the owner or occupant. If not repaired within a reasonable time after notice, the Isthmian Canal Commission will make such repairs, and the cost thereof will be assessed to the property and collection made in the same way as for delinquent water rents.

"Sec. 17. No person or persons, except firemen in the regular discharge of their duties as firemen and duly authorized representatives of the Superintendent of Public Works, shall open, close, interfere, or otherwise tamper with the water hydrants, or any parts thereof, in any manner whatsoever, under penalty of the law.

"Sec. 18. Fire departments shall provide themselves with suitable wrenches to fit hydrants. The use of monkey or adjustable wrenches will not be allowed.

"Sec. 19. No person shall remove, obstruct, or in any way injure any fire hydrant, valve, box or cover, stopcock, or stop box or cover, meter, or meter box or cover, or in any manner injure or molest any machinery, building, tools, fixtures, or property of any kind connected with and necessary to the proper operation of said waterworks system. It shall be the duty of the owner of the premises to see that stop boxes and meter boxes are in sight and unobstructed at all times. Any meter box found to be covered at any time will be cleaned by the Superintendent of Public Works, and the cost of cleaning shall be assessed against the property owner and collected in the same manner, under the same rules, as water rents.

"Sec. 20. No person from whose premises water has been cut off for any cause, or for whose premises water has not been turned on, by the Superintendent of Public Works, or his agents, shall turn water on, or cause the same to be turned on.

"Sec. 21. Any person violating any of the provisions of these regulations shall be subject to a fine of not less than \$5 nor more than \$25 gold.

"Sec. 22. The authorities of the Republic of Panama, designated therefor by existing or future laws, shall have jurisdiction to take cognizance of cases of violations of these regulations, and to impose the fines and penalties herein specified, and to make them effective.

"Sec. 23. The Executive Order of the Governor of the Canal Zone, set forth in Decree No. 23 of May 5, 1906, is hereby repealed."

Decrees:

ARTICLE FIRST AND LAST. The Government of the Republic of Panama accepts the terms and conditions of the foregoing Executive Order of the Government of the Canal Zone.

Be it published and complied with.

Done at Panama this first day of July, 1907.

JOSE DOMINGO DE OBALDIA.

The Secretary of Public Works,

JIL PONCE J.

Estimates for increase of water rents to cover cost and maintenance of paving for the city of Colon for period of ten years.

Estimated cost of Water and Sewer System.....	\$400,000
Interest on cost, at 2 per cent for twenty-five years.....	200,000
Cost of renewal, thirty years.....	300,000
Interest on cost of replacement, 2 per cent ten years.....	60,000
Operation and repairs, \$40,000 per year for fifty years.....	2,000,000
Estimated cost of paving.....	300,000
Interest on cost of paving, twenty-five years, at 2 per cent.....	150,000
Repairs and maintenance, at 2 1/2 per cent per year for ten years.....	75,000
Interest on \$75,000 for five years, 2 per cent.....	7,500
Total to be raised in fifty years.....	3,492,500
Amount to be raised in one year.....	69,850

Consumption of water per day, 400,000 gallons.

For 365 days, 146,000,000 gallons.

69,850 divided by 146,000,000 equals 48 cents per 1,000 gallons.

Rates, rules, and regulations for the use of water and sewers from the public-water system in the city of Colon.

DECREE NO. 33 OF 1906.

[July 20.]

The President of the Republic of Panama, by virtue of his authority, and in consideration of the Executive Order of the Government of the Canal Zone, which literally says:

"ANCON, June 14, 1906.

"By the authority of the President of the United States of America and upon direction of the Secretary of War, it is hereby ordered that the following rules and regulations fixing rates to be charged for the use of water from the public-water system and the use of sanitary sewers in the city of Colon, in the Republic of Panama, and governing the collections of such rates shall be operative and in force from the date that connections can be made with the sewer system of Colon. The charge for water consumed through each water service connection to be the minimum charge fixed by these regulations until such time as a meter is installed.

"SECTION 1. Application for water and sewer must be made at the office of the Water Commissioner of the Government of the Canal Zone. The owner or lessee of the property or his duly authorized agent must sign the application.

"SEC. 2. All contracts for water and sewer shall continue in force from year to year unless a notice is given in writing by the owner, lessee, or the agent of

the owner or lessee to terminate the contract, and the privilege granted of paying the water rents quarterly under these rules shall not be construed to mean for any less period of time.

"Sec. 3. Water and sewer rents within the city of Colon will be based upon the water consumed, whether public sewers are used or not.

"Sec. 4. All water will be delivered through meters. No connections shall be made or maintained at a charge less than \$9 silver per quarter, for which 10,000 gallons may be used during the quarter without further cost. All water used in excess of 10,000 gallons per quarter shall be charged for at the rate of 90 cents per 1,000 gallons, or any fraction thereof including and above 500 gallons.

"Sec. 5. Meters of suitable size must be supplied by the Isthmian Canal Commission, and shall remain the property of the Isthmian Canal Commission until the conditions of amortization are completed.

"Sec. 6. Meters will be read each quarter and bills presented, based on the nearest thousand gallons, on the 1st day of January, April, July, and October for water used. If paid within fifteen days from date of bill at the office of the Water Commissioner, a discount of 10 cents silver per 1,000 gallons will be given. All bills must be settled within forty-five days from date of same. If not paid within forty-five days, they will be reported to the Governor of the Canal Zone for collection by due process of law; and all charges for water, sewer, and legal prosecution will be assessed against the building, lease, or property, and become a lien thereon.

"Sec. 7. No rebate for any unexpired portion of the contract will be allowed.

"Sec. 8. No owner, lessee, or tenant of any premises supplied with water under the contract will be allowed to supply other persons or families of other premises except as provided for in said contract.

"Sec. 9. All plumbing must be done according to the Rules and Regulations governing the sanitary installation of water and sewer for the city of Colon.

"Sec. 10. Meters shall be placed within the property line and at a convenient location within the building, and in no case or circumstance shall any person interfere with said meter or dials thereof, except for the purpose of repairing or removing the meter under the direction of the Water Commissioner. In case where there is no convenient place for the meter within the building, a pit with a suitable cover with lock and key may be built at a point indicated by the Commissioner or his duly authorized representative; said pit to be of sufficient size to allow for easy access and for removal, and to be properly drained.

"Sec. 11. If the meter gets out of order or fails to register, the consumer shall be charged at the average rate of consumption as shown by the meter when in order.

"Sec. 12. All water that passes through the meter in excess of 10,000 gallons per quarter shall be charged for, whether the water is used or wasted.

"Sec. 13. Notice of rents due will be published in the city papers, and notice will be left at the house where water is used, but failure to receive such notice will not operate to excuse or extend the payment beyond the regular time.

"Sec. 14. No person except the Water Commissioner or his duly authorized representative, shall open or close the stopcocks or valves in any of the water mains or service pipes.

"Sec. 15. No plumber or consumer or any other unauthorized person shall turn the water on or off any premises whether old or new supply.

"Sec. 16. The Government of the Canal Zone shall not be held accountable for any damage that may result from leaks, burst pipes, or from any other cause, and the consumer must pay for all water passed through the meter in excess of 10,000 gallons per quarter at the rate of 90 cents silver per 1,000 gallons.

"Sec. 17. When leaks or stoppages occur they must be immediately repaired by the owner, lessee, or occupant. If not repaired within reasonable time after notice the Government of the Canal Zone will make such repairs, and the cost thereof will be assessed to the property and collections made in the same way as for delinquent water and sewer rents.

"Sec. 18. A Venturi meter will be installed to measure all water passed into the city of Colon. The difference of the summation of the meter readings on the service connections in the city of Colon and the reading of the Venturi meter will be the amount of water to be charged against and paid for by the Government of Panama for hydrant and general use, at the regular rate, subject to the same discount.

"Sec. 19. No person or persons, except firemen in the regular discharge of their duty as firemen and duly authorized representative of Water Commissioner shall open, close, interfere, or otherwise tamper with the water hydrants, or any parts thereof, in any manner whatever under penalty of the law.

"Sec. 20. Fire departments shall provide themselves with suitable wrenches to fit hydrants. The use of monkey or adjustable wrenches will not be allowed.

"CHARLES E. MAGOON,
"Governor of the Canal Zone."

ARTICLE 1. The Government of the Republic of Panama accepts the terms and conditions contained in the foregoing Executive Order from the Government of the Canal Zone.

Let this Decree be published and complied with.

Done at Panama this 20th day of the month of July, 1906.

M. AMADOR GUERRERO.

MANUEL QUINTERO V.,
Secretary of Public Works.

A true copy.

For the Assistant Secretary of Public Works.

I. F. LINGE,
Chief Clerk of the First Section.

ADDITIONAL STATEMENT OF LIEUT. COL. GEORGE W. GOETHALS, U. S. ARMY, CHAIRMAN, ETC.

RELOCATION OF THE PANAMA RAILROAD.

Colonel GOETHALS. I should like to explain, first, that we have already begun work on the relocation of the Panama Railroad, so as to secure a route for the railroad around the Gatun locks, in order to enable us to tear out the present bed of the Panama Railroad that will be covered by the dam. We do not know the nature of the material in the railroad embankment, and we count on tearing it out. That will be in our estimates for this year, as we hope to complete that next summer.

The CHAIRMAN. You mean the work of reconstructing the Panama Railroad around the Gatun locks will be completed this year, and that the amount necessary to meet the cost will be included in a deficiency?

Colonel GOETHALS. Yes, sir; and the deficiency will also include a bridge across the Chagres River at Gamboa, for the purpose, first, of developing dumps along the new line for Culebra spoils and at the same time for building embankments of the new line. In other words, it gives us the means of utilizing the excavation from the Cut. That is also estimated for in the deficiency.

The Chagres Division, a large part of it, something like 8,000,000 yards, can be moved most economically by dredging, and this can only be accomplished by backing the water up as the dam is constructed, in order to give sufficient draft for dredges; so that the estimates that I have submitted here for the next fiscal year contemplate carrying on the construction of the road from the vicinity of Gatun locks toward the Gamboa bridge, so as to give us a loop around and across the Chagres and on to the main line in the vicinity of Bas Obispo. That will enable us then to drown out the track beyond Bohio, where it is now located; and that is what these estimates are for.

EXCISIONS FROM THE ESTIMATES.

These estimates were prepared by the Engineer of Maintenance and Ways of the Panama Railroad, and in looking over them to-day I am going to suggest that we reduce the estimate on page 30 by cutting out fencing, \$10,000; telegraph and telephones, \$45,000; depots, \$10,000; water stations, \$10,000; fuel stations, \$20,000; miscellaneous structures, \$10,000, and general expenses, \$60,000. That will make a reduction of \$165,000. I am also going to recommend knocking out \$250,000 for temporary trestles, letting the Culebra Division pay for that portion of it in connection with their dumps, as their share of the dumps. That will give us \$365,000. I am also willing to reduce that estimate \$300,000, making \$365,000 pro rated amongst the various items of grading, and so on down, and I can apportion the work for next year on that scale.

The CHAIRMAN. I make the total reduction \$715,000. The first was \$165,000.

Colonel GOETHALS. Then I put \$200,000 for temporary trestles, leaving \$50,000 for the railroad. Then pro rate \$300,000 between the dams and permanent tracks. That makes \$665,000. We will not be able to complete that track to Gamboa until after the next fiscal year, 1909.

The CHAIRMAN. You reduce the whole estimate to \$1,085,000?

Colonel GOETHALS. Yes.

The CHAIRMAN. And it is your judgment that the remainder of the estimate of \$1,085,000 will be required in the reconstruction of that part of the Panama Railroad that you can complete in the fiscal year 1909?

TUNNEL AT MIRAFLORES.

Colonel GOETHALS. I think so. I am providing here for the continuation of the construction of the tunnel at Miraflores comparatively a small amount, because I do not know what we are going to strike and what difficulties we are going to encounter. Now, that can be wiped out entirely and stopped, too, if you wish it, but I would much prefer not to do it.

Mr. MADDEN. That is only \$30,000.

Colonel GOETHALS. If it is necessary to cut it down we can apportion the work accordingly, that is all.

If there are no other questions on that I will bring in Mr. Rousseau.

ADDITIONAL STATEMENT OF MR. H. H. ROUSSEAU, U. S. NAVY, COMMISSIONER IN CHARGE OF DEPARTMENT OF MUNICIPAL ENGINEERING, MOTIVE POWER AND MACHINERY, AND BUILDING CONSTRUCTION.

MUNICIPAL ENGINEERING.

The CHAIRMAN. On what page is that estimate for municipal engineering, Mr. Rousseau?

Mr. ROUSSEAU. On pages 48 and 49.

The CHAIRMAN. Mr. Rousseau, under the arrangement made recently by the Commission, your department has been charged with the responsibility of municipal engineering. Is that a fact?

Mr. ROUSSEAU. Yes, sir.

The CHAIRMAN. They have turned over to your department work that heretofore has been done by the Department of Civil Administration?

Mr. ROUSSEAU. Yes, in the Zone; the Zone improvements.

The CHAIRMAN. Will you state what the scope of your work is in this particular department of municipal engineering? We neglected to inquire about it yesterday.

Mr. ROUSSEAU. The work of the Division of Municipal Engineering includes everything that relates to the water works, sewers, pavements, roads, and grading in the cities of Panama and Colon, which work has been practically finished; and also in the Zone, which is necessary for the purposes of the Commission. In addition there has recently been turned over to it the construction of such public works of the Department of Civil Administration as are required for the inhabitants of the Canal Zone and not directly necessary on account of the construction of the Canal. In these improvements, in order to avoid duplication of organization and supervision, this latter work is performed by the Canal Commission employees and organization, and paid for out of the funds of the Canal Zone government.

The CHAIRMAN. What work are you now doing, and what do you contemplate doing in the next fiscal year?

CONDITION OF THE WORK.

Mr. ROUSSEAU. The work done in the past fiscal year has been a continuation of the paving, sewerage, and making of water connections in the cities of Panama and Colon. That work has practically come to an end. There is also a great deal of work which the division is called on to perform in the way of road making, and in the settlements, so that the employees can have communication in these settlements. On account of the nature of the soil in the rainy season, unless there is some artificial sidewalk or roadway, communication is practically cut off on account of the very deep mud. However, while this road making and sidewalk making is very important, we found out by experience that it costs between two and three times as much to make these roads and do the grading and hauling the broken stone in the rainy season as it costs in the dry season, and it has been adopted as a principle to confine our road making entirely to the dry season, when it can be done much more cheaply.

REDUCTION OF THE FORCE.

The CHAIRMAN. How is your organization in size, now, engaged in the work of municipal engineering, compared with the organization that the civil government heretofore employed when it had this work under its control? In other words, has the consolidation of this work with your department effected any economy whatever?

Mr. ROUSSEAU. It has effected considerable economy on account of the fact that we have reduced the force of Municipal Engineering at least 1,500 or 2,000 employees in the last six months, mostly negro laborers, and the fact that little or no road making is being done in

the wet season. It would be difficult to state the exact reduction in employees and the exact saving in money that this consolidation has accomplished, but it is in the thousands of dollars.

ROADS AND TRAILS.

The CHAIRMAN. Who determines and authorizes where a road shall be constructed, or a trail?

Mr. ROUSSEAU. When it is paid for out of the Canal Zone revenues the recommendation is made by the head of the Department of Civil Administration, Mr. Blackburn, whose representative, in familiarizing himself with the requirements and making recommendations, sees that the work is done in accordance with the requirements. That is Mr. Campen, who is also Water Commissioner, and he performs this duty in addition to his other duties. Senator Blackburn's request goes to the Chairman, who refers the request to me for recommendation.

The CHAIRMAN. Now, these roads lead from stations or settlements along the line of the Canal back into the interior, do they?

Mr. ROUSSEAU. Back into the interior, and from one settlement to another. The Canal Commission does not pay for those. All those that the Canal Commission does pay for are right in the settlements themselves.

The CHAIRMAN. If the roads are built along the line of the Canal, or along the line of the railroad back of the settlements, those are paid for out of the Canal Zone funds?

Mr. ROUSSEAU. Yes, sir.

The CHAIRMAN. Are there many of these settlements?

Mr. ROUSSEAU. Yes, sir. The main settlements of course are right along the Panama Railroad. Then there are a number of trails leading back into the country.

The CHAIRMAN. What is the character of the country back?

Mr. ROUSSEAU. It is very rolling, and the growth is very thick.

The CHAIRMAN. Is it mountainous?

Mr. ROUSSEAU. It is very hilly and quite badly cut up.

The CHAIRMAN. This is primarily for the benefit of people residing within the Zone?

Mr. ROUSSEAU. Yes. There is no construction outside the Zone, of course.

The CHAIRMAN. What means have they employed heretofore for the purpose of getting out, and getting means of ingress and egress to their homes and settlements?

Mr. ROUSSEAU. There have been a few old trails that have been used. New trails have been laid out, principally to open up the country and afford a chance for the inhabitants of the Zone to occupy a plat of ground and cultivate it here and there, and raise fruit and vegetables, and to some extent relieve the necessity of bringing food supplies down from the States.

The CHAIRMAN. Have you had any success in the work of encouraging the natives or other people to take up or occupy land within the Zone for agricultural purposes?

Mr. ROUSSEAU. It is coming very slowly, but I think and believe that as these works develop and as the natives and others who come

here—that is, imported negroes, as well as imported laborers—find out the possibilities, it will accomplish more good in this direction.

The CHAIRMAN. Is this soil here, back from the Zone, productive?

Mr. ROUSSEAU. I think it is productive. The worst feature about it is the animal life, the insect life, that tends to interfere with agricultural production.

PERSONNEL OF THE DEPARTMENT.

The CHAIRMAN. Have you a force now in your employ in the Municipal Engineering Department, for which you have made your estimates for the fiscal year 1909 on page 48?

Mr. ROUSSEAU. Yes, sir.

Mr. BURLERSON. Are the salaries substantially the same?

Mr. ROUSSEAU. Yes, sir; they correspond, with equal responsibilities and duties, to the work of the construction of the Canal.

The CHAIRMAN. As the paving of the streets, sewerage and water system on the canal are practically completed, what is the necessity in the future for maintaining so large an organization as you have here?

Mr. ROUSSEAU. This organization as proposed is very much less than we had last year, and it is being cut down. It has been cut down since these estimates have gone in. For instance, one item, a resident engineer, \$3,600, can be omitted.

The CHAIRMAN. I asked you, before that, whether you had the same organization you had before.

Mr. ROUSSEAU. No, sir; we have cut it down.

The CHAIRMAN. What are the duties of this division engineer for whom you estimate a salary of \$7,500?

Mr. ROUSSEAU. That position is occupied by Mr. Holcombe, who has been here the last three years and has had entire charge of the force, entire direct charge of the force, in the Division of Municipal Engineering. The number of employees under him has been as high as 4,000.

The CHAIRMAN. I can understand that while these municipal improvements were going on it required a man of considerable executive ability as well as engineering skill; but inasmuch as these improvements have now been practically completed and the work is confined almost entirely, or will be, to building trails and roads through the country, the question is whether a cheaper man would not be equally competent for the service.

Mr. ROUSSEAU. That question will have to be taken up. Of course we will not feel obliged to pay him or any other man that compensation just because it is in the estimates.

The CHAIRMAN. You can go on now.

Mr. ROUSSEAU. The statement that I have, Mr. Chairman, is divided up by divisions and by the different residencies, and I should like an opportunity to combine it and submit it later. When we made this table up in July we anticipated a larger number of reductions. That resident engineer, for example, we did not anticipate, so that the table as made out includes most of the reductions. I will compare it with the changes that have occurred since that time and submit the revised statement to-morrow.

The CHAIRMAN. All right. You can do that, and send it to me if you can not get it ready before we go; or you might go through that and check it off with Mr. Courts, the clerk of the Committee. It would save you work.

UNSKILLED LABOR.

Now, your estimate for unskilled labor in this department is \$209,000.

Mr. ROUSSEAU. Yes, sir. Some of the work that we have on hand for the coming year is indicated in this statement. I have an itemized list showing how that will be spent. It shows the Zone highways, the location of them, and the unit cost per mile.

The CHAIRMAN. Please submit that statement to the stenographer.

Mr. MADDEN. Is it macadam construction?

Mr. ROUSSEAU. Entirely. The trail is 6 or 8 feet wide, and when necessary to have team traffic it is 12 or 14 feet wide. It is made of broken stone, and is 4 inches deep.

The CHAIRMAN. You have not included all the work embraced in your department, have you? You have the roads and streets and all these settlements along the canal?

Mr. ROUSSEAU. Yes. That is the greater part of the work. The trails are paid for from the Canal Zone revenues.

The CHAIRMAN. And you also have charge of the water systems in the various settlements like Culebra and Empire?

Mr. ROUSSEAU. Yes, sir. There are four main reservoirs, one at Rio Grande, one at Empire, one at Gorgona, and one at Mount Hope.

The CHAIRMAN. Does your work conflict in any way, or is there any duplication of the work of the inspectors under the Department of Civil Administration who are appointed to go out and inspect the water connections?

Mr. ROUSSEAU. No, sir; because the work of municipal engineering is entirely on construction.

The CHAIRMAN. It has nothing to do with maintenance?

Mr. ROUSSEAU. If the inspectors find anything wrong, or of such a nature that the inspector with a wrench cannot remedy it, they report it to us.

The CHAIRMAN. You have no inspection force that goes over these various water mains, and plumbing, and things of that kind through the Zone?

Mr. ROUSSEAU. No, sir.

FUEL AND INCIDENTALS.

The CHAIRMAN. You estimate coal and fuel and incidentals in your department at \$76,000?

Mr. ROUSSEAU. Yes, sir. That is largely in the pumping plants. We have a large number of pumping plants. At Ancon we have one to pump up to Ancon Hill.

The CHAIRMAN. Mr. Campen, didn't you say you supplied the pumping plants?

Mr. CAMPEN. No, only pumping the sewage. I have nothing to do with the Colon pumping plant, only to pay a proportion of the coal in proportion to the amount of water used between Colon and the

Zone. We have a meter at the Mount Hope station that tells the total amount of water used. We also have a meter in the town that tells the amount of water used in Colon, and we pay the coal bill in Mount Hope in proportion to the amount of water that we use in Colon. We pay in that proportion.

Mr. ROUSSEAU. This is all in addition to that coal.

BRICK, LUMBER, AND CEMENT.

The CHAIRMAN. Your estimate for brick, lumber, and cement is \$78,500. On what grounds do you arrive at that estimate, Mr. Rousseau?

Mr. ROUSSEAU. The brick includes brick for paving, as well as brick for sewers, but the brick for sewers is not of great amount. The cement is a large item. It is used in the construction of sewers, and also in curbing, sidewalks, etc. That item should also include broken stone, which is a very large item.

The CHAIRMAN. For macadam?

Mr. ROUSSEAU. Yes, for macadam pavements.

The CHAIRMAN. Are you using macadam exclusively in the Zone?

Mr. ROUSSEAU. Yes, sir. There is nothing better.

The CHAIRMAN. How does it compare in cost with vitrified brick for pavement?

Mr. ROUSSEAU. It costs about one-quarter as much.

REPAIRS TO BUILDINGS.

The CHAIRMAN. Have you anything there bearing on the estimates for buildings under your department? If so, we would be very glad to have it.

Mr. ROUSSEAU. Yes, sir. At the beginning of this fiscal year we had on hand 563 old French buildings which had not been repaired at all. In the first place, the item of repairs is rather misleading, as it includes not only repairs, but improvements and alterations. There were expended last fiscal year for repairs to the old French buildings and for improvements and alterations to new buildings about \$280,000.

Mr. MADDEN. What was the nature of the alterations?

Mr. ROUSSEAU. I have the list here. Can I bring it up a moment later?

Mr. MADDEN. Certainly.

Mr. ROUSSEAU. The estimate for next year is \$225,000. We are spending this year for repairs to the old French buildings and alterations and improvements at about the same rate or a little greater than last year. It is due very largely to the fact that a greater number of the old French buildings are being put into use. The average cost to put one of the old French buildings in use in the past has been \$550.

Mr. GARDNER. Is that the entire price?

Mr. ROUSSEAU. That is the average, reached by dividing the total cost by the number of buildings repaired, and the amount of money we will need will depend on how many of these French buildings we will put in use for laborers. The system of repairing buildings, as

explained already, I think, is to have a local representative of the Department of Labor, Quarters, and Subsistence make an examination and obtain an estimate from the local representative of the Master Builder and forward the same to the head of the Department of Labor, Quarters, and Subsistence, Mr. Jackson Smith. Then Mr. Jackson Smith forwards it to the Chief Engineer, who, if he approves it, sends it to the Master Builder, who takes the work in hand.

APPLICATIONS FOR REPAIRS, ETC.

Since last night, when I learned you wanted further information on this, I had some of this information taken out of the master builder's files this morning. He took out about one-third. This [indicating a pile of papers] represents one-third of the applications for repair of quarters filed in the past twelve months. Taking them up haphazard, I would like to show them to you, or pass them around.

Mr. GARDNER. Give us a specimen.

Mr. ROUSSEAU [reading]:

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, November 7, 1906.

Mr. W. M. BELDING,
Master Builder, Building.

DEAR SIR: I beg to request that a shower bath be installed in bathroom of house No. 51 at San Pablo, and that floor of bathroom be lined with tin or zinc. Kindly have this work done as early as possible.

Yours, truly,

JACKSON SMITH, *Manager.*

Approved:

E. B. SHANNON,
Secretary to Chief Engineer.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, August 31, 1906.

Mr. W. M. BELDING,
Master Builder, Building.

SIR: Replying to yours of August 30, with attached petition from several of your gold employees at Ancon, who are quartered on what is known as "Goblers Knob" in tents, that they be furnished with a toilet and bathroom.

This will be your authority to furnish these men bathing and toilet facilities as outlined in your letter of August 30; the work to comprise two toilet and bath rooms in one building.

Kindly advise me when this work is completed.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. MADDEN. That is what you call repairs?

Mr. ROUSSEAU. That is improvements. Of course we have no special appropriation for improvements or alterations. It is customary to charge any construction of a minor character in an existing building as repairs.

Mr. MADDEN. How much of the total amount of repairs has been spent on building shower baths?

Mr. ROUSSEAU. I could not tell that.

Mr. MADDEN. How much has been spent on making changes in the buildings already built? How much has been spent on the remodeling of buildings?

Mr. ROUSSEAU. Possibly one-third.

Mr. MADDEN. It does not seem to me that that ought to be permissible.

Mr. ROUSSEAU. Of course the old French buildings were not equipped with plumbing and shower baths, and they were not screened. The sanitary officer sends in requisitions to have these shower baths screened, and sends in requisitions to have plumbing installed.

Mr. MADDEN. Every request that is made is granted as a matter of course?

Colonel GOETHALS. No, sir.

Mr. GRAFF. Do the buildings constructed in the United States for family and bachelor quarters have shower baths?

Mr. ROUSSEAU. Yes. The regulations complied with by the Panamanian government and the United States Government allow only a certain number of employees and inhabitants to each shower bath and each closet.

Mr. MADDEN. We are not furnishing hot baths yet?

Mr. ROUSSEAU. No, not yet.

Mr. GARDNER. Generally, what is the nature of the repairs to the French buildings, aside from these improvements, such as closets and baths?

Mr. ROUSSEAU. They have to be painted inside and out, and very often a considerable amount of underpinning has to be renewed on account of its having been eaten by the ants.

Mr. GARDNER. How about the roofs?

Mr. ROUSSEAU. They are the best portions of the buildings. The French corrugated iron only needs painting.

Mr. GARDNER. Have they been painted?

Mr. ROUSSEAU. No, sir, not since the French left. They were probably hand dipped and made of steel.

Mr. MADDEN. The corrugated iron made ten years ago is better than that made now.

Mr. ROUSSEAU. [Reading]:

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, August 13, 1906.

Mr. A. M. BURTT,
Acting Master Builder, Building.

SIR: You kindly arrange for general repairs to house No. 41 at San Pablo, which it is desired to use as white married quarters. This house should also be painted and the porches screened.

Kindly advise me when this work is completed.

Respectfully,

JNO. R. STEVENS, Chief Engineer

Mr. GILLETT. Are all these repairs on the French buildings?

Mr. ROUSSEAU. Three-quarters of the repairs have been on French buildings.

Mr. GILLETT. Have there been any repairs on American buildings except repairs to the roofs?

Mr. ROUSSEAU. The plumbing sometimes get out of order, but no general repairs are allowed to new buildings, and there will not be any necessity for them for some years to come.

Mr. MADDEN. There will be some changes, Mr. Rousseau?

Mr. ROUSSEAU. There have been some changes in some special houses, perhaps.

Mr. MADDEN. Did I not understand you to say that one-third of the expenses had been made in changes of buildings already constructed?

Colonel GOETHALS. That is in the French buildings.

Mr. ROUSSEAU. I did not intend that to cover American buildings. Here is one letter, dated December 15, 1906. [Reads:]

DEPARTMENT OF LABOR, QUARTERS, AND SUBSISTENCE,
Culebra, December 15, 1906.

Mr. W. M. BELDING,
Master Builder, Building.

DEAR SIR: Please issue the necessary instructions to screen all houses in the laborers' camp at Las Cascadas, and make such minor repairs as the stopping up of holes and cracks, making the buildings as mosquito-proof as possible.

We expect to place a shipment of European laborers at this point about December 28, and I will thank you to have the work taken in hand and rushed to completion.

Yours, truly,

JACKSON SMITH.

Approved:

E. B. SHANNON,
Secretary to Chief Engineer.

We do not know in advance just where these laborers will be assigned, and we do not do any work on the quarters until we know that they are going to be occupied. The head of the Department of Labor, Quarters, and Subsistence stated to-day that he often assigns laborers to French quarters without having any repairs made at all—that is, he has the repairs made afterwards.

DEMOLITION AND REMOVAL OF OLD FRENCH BUILDINGS.

Another class of work covered by this item in the appropriation is the demolition of old buildings and the removal of these old French buildings which are on the site of the work. Here is a request of August 6, 1907. [Reads:]

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, August 6, 1907.

Mr. W. M. BELDING,
Master Builder, Building.

DEAR SIR: Please move house No. 10, at Tabernilla. It is expected that the shovel will be at work at this point on or about the 15th instant, and it is desired that arrangements be made to have the house removed a safe distance by that time.

Yours, truly,

R. E. WOOD, Acting Manager.

Here is another one, dated October 23, 1906. [Reads:]

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, October 23, 1906.

Mr. W. M. BELDING,
Master Builder, Culebra, C. Z.

DEAR SIR: I beg to request that steps be constructed in the rear of camp No. 36 at Tabernilla, to replace those which have rotted away.

Yours, truly,

R. E. WOOD, Acting Manager.

Approved:

JOHN F. STEVENS,
Chief Engineer.

Here is still another, under date of June 25, 1907. [Reads:]

DEPARTMENT OF LABOR, QUARTERS, AND SUBSISTENCE.
Culebra, June 25, 1907.

Mr. W. M. BELDING,
Master Builder, Building.

DEAR SIR: Please make the necessary repairs to buildings 189 and 190, Russian Camp, at Bas Obispo.

The roofs of these buildings leak so badly that it is impossible for the men to keep their clothes or bunks dry. The windows have no blinds or doors, and several of the main doors are also broken or wanting.

Yours, truly,

R. E. Wood, Acting Manager.

The CHAIRMAN. Mr. Rousseau, can you tell us now the number of applications that you have, and the number for repairs, and the number of those where the men under you have made examination and decided that the repairs are necessary? Give us the total number of cases of that kind.

Mr. ROUSSEAU. Of course these cases at first are taken up through our office.

The CHAIRMAN. Those letters you have been reading illustrate the applications you have had?

Mr. ROUSSEAU. Yes. These are all completed.

The CHAIRMAN. How many are there?

Mr. ROUSSEAU. This was about one-third.

The CHAIRMAN. You do not need to count them, but you can approximate them.

Mr. ROUSSEAU. There are about 200 of them here, or more, so that there would be 600 or more of similar requests. We do not know in advance when these requisitions are coming in, or the amount of them. These items will not continue, however, because as soon as the French buildings we are going to use are all repaired we will have nothing to repair except our own buildings, which constitute a very small item.

COST OF PAVING, SEWERAGE AND WATER SYSTEMS IN COLON AND PANAMA.

The CHAIRMAN. There was one question that I omitted to ask you about. Is it in your department that they are now endeavoring to ascertain the cost of street paving, sewerage, and the establishment of water systems in the cities of Colon and Panama?

Mr. ROUSSEAU. Yes, sir. That has come about as follows: A great deal of that work was originally done when there was yellow fever in the cities of Panama and Colon. There was a constant change in the clerical force. Men would throw up their work and go out without leaving any explanation of their notes or figures, and while, as we think, we have a nearly complete record—and sooner or later we will have—still, in view of the contract with the city of Panama—in fact they have the right to examine our books at any time—we want our books in a condition where we can stand by them; and it has merely been necessary to check over the vouchers and quantities, so that we can assure the Republic of Panama that the accounts as they stand are entirely correct and that there is no error in them.

The CHAIRMAN. So that this is for the mutual benefit of the Panamanian government and our own Government?

Mr. ROUSSEAU. Yes; of the two parties to the contract.

The CHAIRMAN. When do you expect to have that work completed?

Mr. ROUSSEAU. That work is practically completed now. It has not been checked over, but we have a rough transcript of it here, showing the quantities and the costs.

The CHAIRMAN. Can you state approximately what that cost will be?

Mr. ROUSSEAU. Yes, sir. It was to approximate quantities also.

The CHAIRMAN. No, the approximate aggregate in each city.

Mr. ROUSSEAU. Colon, street improvements, \$250,000; water and sewers, \$475,000. Panama, pavements, \$400,000; waterworks and sewers, \$650,000; amounting to \$725,000 in Colon and \$1,050,000 in Panama. The water rates were based approximately upon these total costs. Under the contract, however, if the Government of Panama should for purposes of sanitation require additional improvements in the way of water, sewers, and so forth, in either of those cities it would be possible for the United States Government to furnish it, making rates to correspond, making an adjustment in the rates to reimburse the Government.

Mr. MADDEN. That was the total actual cost that you gave?

The CHAIRMAN. Approximate.

Mr. MADDEN. The approximate actual cost?

Mr. ROUSSEAU. Yes, sir.

Mr. MADDEN. The figures, including interest, wear and tear, cost of repairs, and all that, upon which the settlement was made, are something like \$6,668,000?

Mr. ROUSSEAU. Yes, sir.

Mr. MADDEN. At what rate of interest?

Mr. ROUSSEAU. Two per cent.

Mr. MADDEN. Is that compounded?

Mr. ROUSSEAU. I believe so. Is it not?

The CHAIRMAN. Oh, no. It is not compounded.

Mr. MADDEN. What else is there to make up this \$5,000,000?

Mr. ROUSSEAU. The complete renewal of all the pipes, both sewers and water, is figured in that, inasmuch as the life of a water pipe is only figured at about twenty-five years, and if the pavement is going to be taken care of for twenty years—

The CHAIRMAN. Ten years—

Mr. ROUSSEAU. Yes; ten years. Those figures are all heré.

Mr. MADDEN. That is all I cared for.

Mr. ROUSSEAU. Here is a table showing the calculations. If you wish to have it in the record I will submit it.

Mr. MADDEN. That would be a bright idea. Put it in the record.

Following is the table referred to:

Calculations on which water rates for the city of Panama are based for the amortization of cost of sewers, waterworks, and pavements.

Estimated cost of Panama Water and Sewer Plant.....	\$625, 000
Interest on cost for twenty-five years, at 2 per cent.....	312, 500
Estimated cost of replacement, thirty years.....	450, 000
Interest on cost of replacement, ten years, at 2 per cent.....	90, 000
Operation and maintenance, \$20,000 per year.....	1, 000, 000
Cost of paving, plus Coco Grove and Guachapoli.....	450, 000
Interest on cost, twenty-five years, at 2 per cent.....	225, 000

Maintenance and repairs, ten years, at 2½ per cent per year.....	\$112, 500
Interest on \$112,500 for five years, 2 per cent.....	11, 250
Total to be raised in fifty years.....	3, 276, 250
Amount to be raised in one year.....	65, 525
Consumption of water per day, 800,000 gallons.	
For 365 days, 292,000,000 gallons.	
65,525 divided by 292,000,000 equals \$0.23— per 1,000 gallons.	

Memorandum.

Panama :

Water mains (11.37 miles).....	feet..	59, 948
Sewers (17.3 miles).....	do.....	91, 504
Paving—		
Brick	square yards..	64, 227
Concrete	do.....	24, 546
Macadam	do.....	3, 073
Hydrants		134
Curb	linear feet..	52, 295
Manholes		269
Catch basins.....		228

Colon :

Water mains (5.14 miles).....	feet..	27, 152
Sewers—		
Sanitary (4.12 miles).....	do.....	21, 554
Storm (0.78 mile).....	do.....	4, 081
Paving—		
Brick	square yards..	6, 410
Macadam	do.....	39, 603
Hydrants		54
Curb and gutter.....	linear feet..	35, 522
Manholes		74
Catch basins.....		73

REPAIRS TO BUILDINGS (AGAIN).

Mr. MADDEN. Have you any correspondence to show that there is a desire to prevent expenditures that are unnecessary, or an attempt to justify such expenditures, or, as a matter of fact, are the requests all granted, no matter from what source they come?

Mr. ROUSSEAU. Oh, no. We have correspondence of that kind.

Colonel GOETHALS. I will furnish all the record on file.

Mr. MADDEN. Thank you, sir.

Following are specimens of the correspondence referred to, filed by Colonel Goethals:

CULEBRA, November 7, 1907.

SIR: Referring to your letter of October 23, returning papers relative to request of the Superintendent of Colon Hospital for the construction of a shed 30 by 80 feet for use in storing material:

Mr. Tubby advises me that he has gone over the ground with the Superintendent of Colon Hospital and the Acting Health Officer, and it has been found that by rearranging the stock in the large medical storehouse, a section about 24 feet wide at the north end, on the ground floor, can be fenced off with a partition about 8 feet high, and that this arrangement will afford ample room to take care of all the supplies which the Colon Hospital and the Health Department will have to store, thus doing away with the necessity of building the shed requested, which would cost in the neighborhood of \$1,800. By rearranging the stock as indicated, there will be about 30 per cent of the space available for further storage.

Respectfully,

GEO. W. GOETHALS, *Chairman.*

Col. W. C. GORGAS,
Chief Sanitary Officer, Ancon, Canal Zone.

Copy to Mr. W. M. Belding.

CRISTOBAL, November 6, 1907.

SIR: Replying to your notation of the 2d instant, on letter from Master Builder Belding, and returning herewith papers regarding request of the Sanitary Department for a shed at Colon Hospital, with walls 10 feet high, iron roof, concrete floor, size 30 by 80 feet, to be used for storing material:

I was at Colon Hospital to-day and, in company with Doctor Leys, Superintendent of Colon Hospital, and Doctor Evans, Acting Health Officer of Colon and Cristobal, looked the situation over and found that they had considerable property, such as beds, tents, coffins, etc., stored under the hospital building, which should be stored in a building, and after looking the situation over ascertained that by a little rearranging of stock in the large medical storehouse in Colon Hospital grounds a section about 24 feet wide at the north end, on the ground floor, could be fenced off with partition about 8 feet high to keep the two stocks separated, and a door cut in the end of the building with a small platform and steps erected, and this arrangement would afford ample room to take care of all the supplies which the Colon Hospital and Health Department will have to store, doing away with the necessity of building a shed at an estimated cost of \$1,800. By rearranging the stock in the large medical storehouse there will be about 30 per cent of the space available for further storage.

Very respectfully,

W. G. TUBBY,

Chief, Division of Material and Supplies.

Col. GEO. W. GOETHALS,

Chairman and Chief Engineer, Culebra, Canal Zone.

CULEBRA, October 26, 1907.

SIR: Referring to attached correspondence in reference to a storehouse desired by the sanitary department at Colon Hospital, for the purpose of storing old material, lumber, etc., now under the various hospital buildings, I am personally quite familiar with this situation, and in relation to this material I beg to state that a very large portion, if not all of it, is material that should not be, in my opinion, in the hands of the Sanitary Department. There was at one time, and I believe it is yet, a number of plumbing fixtures and a lot of fittings which were in the hands of the Sanitary Department over two years ago, for what purpose I am not advised, but I am quite sure that there is much of this lumber and material that should be in the hands of either the Material and Supplies Department of the Building Construction Division for use, and if this material was culled over and such portions taken away as would not reasonably be required by the Sanitary Department, I think a very small building would accommodate the balance.

If you deem it advisable I will look into the situation in detail and give you a further report. If you desire me to take this up in this way, please advise.

Yours, truly,

W. M. BELDING, *Master Builder.*

Colonel GEO. W. GOETHALS,

Chief Engineer, Building.

ANCON, CANAL ZONE, October 23, 1907.

SIR: Wish to invite your attention to inclosed letters written by the Superintendent of Colon Hospital and Health Officer, Colon-Cristobal, which indicate that the shed asked for is a necessity in connection with this Institution.

If this measure meets with your approval I would thank you to give authority to have the construction carried out.

By direction of the Chief Sanitary Officer.

Very respectfully,

C. C. McCULLOUGH, Jr.,
Executive Officer.

The CHAIRMAN ISTHMIAN CANAL COMMISSION,
Culebra, Canal Zone.

COLON HOSPITAL, *Cristobal, October 19, 1907.*

SIR: I have the honor to request that authority be given for the Building Construction Department to erect on the premises of Colon Hospital, a suitable shed, in place to be designated, walls 10 feet high, with iron roof and with concrete floor, size of shed to be 80 by 30 feet.

The storeroom space at this hospital is very limited. We have only one small storeroom, about 20 feet square, and this is filled mostly with perishable articles and expendable articles. All of our bulky stores on hand, such as bedsteads, boxes, spare furniture, coffins, coffin cases, lumber, articles awaiting property survey, etc., are stored underneath the buildings on the ground, where they are difficult of access, hard to keep in any sort of order, and exposed to the weather and to theft. A suitable shed or rough storehouse for their protection and safe keeping is greatly needed. The cost of the work is estimated at \$1,800.

I inclose herewith letter recently received from the Health Officer of Cristobal-Colon, which calls attention to this matter from a sanitary point of view.

Very respectfully,

J. F. LEYS, *Superintendent Colon Hospital.*

The CHIEF SANITARY OFFICER,
Ancon, C. Z.

Through Director of Hospital.

CRISTOBAL, C. Z., *October 12, 1907.*

SIR: I beg to inform you that on account of the barrels, boxes, old lumber, etc., under certain buildings in the Hospital Reservation it is found impossible to do good mosquito work, nor can it be done until the same have been removed. The following buildings have been reported by the Sanitary Inspector, together with the statement that he is unable to perform his work satisfactorily as long as this old lumber, boxes, etc., remains where it is at present.

Buildings Nos. 14, 15, 16, and 17.—Barrels, ridge poles, boxes, etc., are stored underneath.

Nurses' Quarters.—Barrels and old lumber.

Building No. 29.—Old lumber.

Storehouse.—Lumber, etc.

It is requested that the places enumerated be cleared or that the material be raised off the ground to a height of at least 3 feet.

Respectfully,

Health Officer, Colon and Cristobal.

SUPERINTENDENT COLON HOSPITAL,
Colon, Republic of Panama.

ISTHMIAN CANAL COMMISSION,
OFFICE OF CHAIRMAN AND CHIEF ENGINEER,
Culebra, C. Z., October 29, 1907.

[Memorandum for Mr. Smith.]

Referring to your memorandum of October 12, file 6165-60:

I do not feel warranted, in view of the report made by the Division of Building Construction, to authorize the tearing down of House No. 1 at Empire. I have instructed the Master Builder, therefore, to continue the repairs, removing all paint before new coats are applied.

GEO. W. GOETHALS, *Chairman.*

CULEBRA, *October 14, 1907.*

[House No. 1, Empire.]

SIR: Referring to attached memorandum from Mr. Jackson Smith, with reference to House No. 1, at Empire, I have no comment or recommendations

to make with reference to this matter, except such as are embodied in my letter to you of recent date, on the same subject. I do not wish to be understood as being in the position of standing in the way of any alterations or improvements that may be ordered with reference to any building, and an order from you to demolish this building, and build in its stead any type of house that we have, will be cheerfully complied with; however, see no reasons for changing the opinion expressed to you in my former letter.

Yours, truly,

W. M. BELDING, *Master Builder.*

Col. GEO. W. GOETHALS,
Chief Engineer, Building.

CULEBRA, October 12, 1907.

[Memorandum for the Chief Engineer.]

The attempt to keep House No. 1 (residence of the Division Engineer), at Empire, in habitable shape has called for almost continuous repairs for the past three years, and the Building Division has repeatedly stated that it was impossible to ever keep the house in shape for the purpose for which it is used. This house is one of the oldest houses on the Isthmus, and on account of its long idleness it has become impaired by weather exposure and ants until it is fit for a first-class residence in looks only. To stack up paint on an old dead, mildewed paint may add to its looks, but can not put it in first-class shape.

On account of the location of this house it is not desirable to convert it into bachelor quarters or to make it a two-family house of a lower grade. I feel under the circumstances that my conscience will permit me to renew my recommendation to demolish it, using the material in it that may prove of value, and building upon the same site a house of a character fit for the residence of the Division Engineer of the Culebra Division.

JACKSON SMITH, *Manager.*

CULEBRA, October 10, 1907.

SIR: Replying to your notation on letter of Mr. Jackson Smith, addressed to me, under date of October 7, with reference to the demolition of House No. 1, at Empire, and the building of a Type 24 house on its site, I have had this building examined by three parties, all of whom are qualified to express an opinion as to its usability, and have also been over the entire premises to-day, accompanied by my superintendent of painting, and I can not conscientiously recommend the demolition of this building, as I think it is entirely serviceable and habitable, and with some additional painting, will be in first-class shape.

Awaiting your instructions in reference to the matter, I am,

Yours truly,

W. M. BELDING, *Master Builder.*

Col. GEO. W. GOETHALS,
Chief Engineer, Building.

CULEBRA, October 7, 1907.

DEAR SIR: Please discontinue repairs to house at Empire which has been occupied by the Division Engineer of the Culebra Division, and demolish the house.

On its site, erect a Type 24 house, to be occupied by the Division Engineer.

Very truly,

JACKSON SMITH, *Manager.*

Mr. W. M. BELDING,
Master Builder, Culèbra.

Copies to Chief Engineer, Mr. J. G. Holcombe, Mr. D. W. Bolich, Mr. C. C. McColley.

Referred to Master Builder for examination, recommendation, and estimate. Return papers.

October 8, 1907.

H. H. R.

Mr. GARDNER. Do you find anywhere a spirit of maliciousness toward property or extreme carelessness on the part of laboring men or others?

Mr. ROUSSEAU. Sometimes in the bachelor houses, yes. That is in the Department of Labor, Quarters, and Subsistence. But I understand that the occupants have to pay for any damage done.

Mr. GARDNER. You penalize them?

Mr. ROUSSEAU. Yes, we do that.

Following are additional letters requesting repairs, filed by Mr. Rousseau:

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, C. Z., August 1, 1906.

SIR: I wish you would arrange for the demolition of House No. 18 at Paraiso. This house is old and unfit for use, and is a menace to the health of the occupants of the surrounding houses.

Kindly advise me when this building is torn down.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. A. M. BURT,
Acting Master Builder, Building.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, C. Z., August 1, 1906.

SIR: As it is intended to open up the gold mess at Tabernilla immediately, will you kindly send some carpenters there to-morrow to make some small repairs on the building which will be used for this purpose, and also to put in some shelving and lockers for the accommodation of supplies?

Mr. Parker, Superintendent, will designate the work which it is desired to have done. Please see that these men are sent there to-morrow without fail, and advise me when the work is completed.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. A. M. BURT,
Acting Master Builder, Building.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, C. Z., August 1, 1906.

SIR: Will you please arrange for general repair, painting, and also the screening of porch of House No. 50, at San Pablo, it being intended to use this building as white married quarters. I would like to be advised when this work is completed.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. A. M. BURT,
Acting Master Builder, Building.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, August 10, 1906.

SIR: It is recommended by the Sanitary Department that the two buildings at Gamboa, occupied by the two engineers in charge of the fluviograph, be screened and provided with rain-water tanks fitted with taps and covered tops.

I approve this recommendation, and wish you would arrange to do the work, advising me when completed.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. A. M. BURT,
Acting Master Builder, Building.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, C. Z., August 21, 1906.

SIR: Referring to your letter of August 20 relative to the removal of four or five negro quarters which are located on the line of track which Mr. Bierd states he is ready to lay in the west yard at Cristobal.

This will be your authority to remove such of these buildings as may be necessary to make room for the laying of the new lead track.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. W. M. BELDING,
Master Builder, Building.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, August 24, 1906.

SIR: The Branch of Labor and Quarters requests that House No. 6, at Gorgona, be converted into a 2-family house. This will necessitate the building of a kitchen on the back verandas of each floor; each kitchen to be equipped with sink. It will also be necessary to install a shower bath and closet on the first floor.

I wish you would kindly arrange to have this work done as early as possible and advise me when same has been finished.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. W. M. BELDING,
Master Builder, Building.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, August 25, 1906.

SIR: I wish you would kindly install the hot water boiler at the Corozal Hotel, putting in a boiler similar to the one placed in the Culebra Hotel kitchen. On account of the extra number of people we are now beginning to feed at that place, this work is urgent.

Kindly advise me when this boiler has been installed.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. W. M. BELDING,
Master Builder, Building.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, August 25, 1906.

SIR: The Branch of Labor and Quarters requests that House No. 82, at Gorgona, be furnished with blind shutters for the lattice openings in the front of the house, also some shelving and a roof over the porch. It is claimed that whenever there is a heavy rain it beats through the latticework at least half-way across the rooms.

I wish you would kindly have these shutters placed on this house at the earliest practicable date, advising me when you have done so.

Respectfully,

JNO. F. STEVENS, *Chief Engineer.*

Mr. W. M. BELDING,
Master Builder, Building.

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, September 5, 1906.

DEAR SIR: I beg to request that general repairs be made to House No. 52 at Pedro Miguel Junction, on account of the settling of the building caused by gullies formed during the present rainy season; also that roof and outside of building be painted and inside of building be whitewashed.

Yours, truly,

JACKSON SMITH, *Manager.*

Mr. W. M. BELDING,
Master Builder, Culebra, C. Z.

Approved:

JNO. F. STEVENS, *Chief Engineer.*

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, October 23, 1906.

DEAR SIR: I beg to request that steps be constructed in the rear of camp No. 37 at Tabernilla, to replace those which have rotted away.

Yours, truly,

R. E. WOOD, *Acting Manager.*

Mr. W. M. BELDING,
Master Builder, Culebra.

Approved:

JNO. F. STEVENS, *Chief Engineer.*

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, March 14, 1907.

DEAR SIR: The floor in the kitchen of the hotel at Culebra is in a deplorable condition, and it is desired that it be replaced with a cement floor.

Will you please arrange to have the work done at as early a date as possible?

Yours, truly,

JACKSON SMITH, *Manager.*

Mr. W. M. BELDING,
Master Builder, Building.

Approved:

E. B. SHANNON,
Secretary to Chief Engineer.

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, March 14, 1907.

SIR: Please arrange to construct a new ice box in the kitchen of the hotel at Culebra, tearing out the old one.

Mr. R. A. Stewart, Superintendent of this Department at Empire, will furnish the details for this work.

The proposed change will afford better ventilation and more light for this kitchen.

Yours, truly,

JACKSON SMITH, *Manager.*

Mr. W. M. BELDING,
Master Builder, Building.

Approved:

E. B. SHANNON,
Secretary to Chief Engineer.

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, April 5, 1907.

DEAR SIR: Please put in a cement pavement between the kitchen and store-room of the La Boca gold mess.

The representative of this department at that point will furnish the details for this work.

Yours, truly,

JACKSON SMITH, *Manager.*

Mr. W. M. BELDING,
Master Builder, Building.

Approved:

E. B. SHANNON,
Secretary to Chief Engineer.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, C. Z., April 9, 1907.

SIR: Referring to your letter of April 8 relative to screening the verandas of the Culebra Hotel.

I think that we should screen the third floor of this hotel while the other screening is being put up, as the Sanitary Department will undoubtedly ask to have that work done later on.

Will you kindly be governed accordingly.

Yours, truly,

GEO. W. GOETHALS, *Chief Engineer.*

Mr. W. M. BELDING,
Master Builder, Building.

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, April 13, 1907.

DEAR SIR: Please place a galvanized-iron roof, 3 feet wide, around the store-room underneath the servants' quarters at the Gorgona Hotel, to protect the goods in this room from the rain and sun.

Yours, truly,

JACKSON SMITH, *Manager.*

Mr. W. M. BELDING,
Master Builder, Building.

Approved:

E. B. SHANNON,
Secretary to Chief Engineer.

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, April 30, 1907.

DEAR SIR: Please have all transom windows of the bedrooms in the Hotel Tivoli equipped with hinges, so as to afford improved ventilation.

Yours, truly,

R. E. WOOD, *Acting Manager.*

Mr. W. M. BELDING,
Master Builder, Building.

Approved:

E. B. SHANNON,
Secretary to the Chief Engineer.

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, May 10, 1907.
[Tivoli Hotel.]

SIR: Referring again to the matter of hinging the transoms in the various rooms of the Tivoli Hotel, this work, if carried out, will require 768 pairs of butts and 384 transom catches. I estimate the entire cost of this work, including labor and material, at \$406.28, using as inexpensive material as we have in stock.

Do you advise that this work be undertaken?

Yours, truly,

W. M. BELDING, *Master Builder.*

Mr. H. H. ROUSSEAU,
Supervisory Engineer, Building.

MAY 11, 1907.

Mr. BELDING:

O. K. Return this paper when completed.

H. H. R.

GOVERNMENT OF THE CANAL ZONE,
DEPARTMENT OF HEALTH,
Ancon, May 13, 1907.

DEAR SIR: We are having great difficulty in keeping the garbage cans at Tivoli Hotel in as sanitary condition as we wish. I would suggest that a con-

crete table laid even with the floor of the present inclosure to accommodate 15 garbage cans be constructed.

We will then screen this in, and connect the inclosure by a screen door into the kitchen. This inclosure should be supplied with a hot-water faucet, and a trap connection with the sewer to enable us to wash out cans and dispose of the greasy water.

I inclose a rough sketch of the proposed construction. With the large number of typhoid cases, and the approach of the season for dysentery, it becomes imperative for us to take every precaution against fly contamination, and we are anxious that Tivoli Hotel should be absolutely exempt from this danger.

Very respectfully,

HERMAN CANFIELD,
Acting Chief Sanitary Inspector.

Mr. J. M. MAGUIRE,
Superintendent, Department of Labor, Quarters, and Subsistence, Ancon.

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, May 20, 1907.

DEAR SIR: Please have ground in rear of kitchen at Hotel Tivoli concreted as shown in attached sketch and letter of the Acting Chief Sanitary Officer. In addition to the details shown in plan and letter, please build this floor with a six-inch rim all around.

Yours, truly,

R. E. WOOD, *Acting Manager.*

Mr. W. M. BELDING,
Master Builder, Culebra.

Approved:

E. B. SHANNON,
Secretary to Chief Engineer.

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, May 31, 1907.

DEAR SIR: The flies have become an intolerable nuisance in the Culebra Hotel, and it is imperative that we try to get rid of them. I see no way of ever keeping them out of the kitchen entirely, as such an amount of supplies is coming in and going out throughout the day and the doors have necessarily to be left open.

I would therefore request you to put swinging screen doors on four of the openings between the dining room and the rear porch, and to entirely close up the other. We will have these kept shut except at mealtime, and will try to rid the dining room at least of the presence of the flies.

Yours, truly,

R. E. WOOD, *Acting Manager.*

Mr. W. M. BELDING,
Master Builder, Building.

DEPARTMENT OF LABOR, QUARTERS AND SUBSISTENCE,
Culebra, July 1, 1907.

DEAR SIR: The manager of the Tivoli Hotel reports to me that on the evening of June 22, 16 rooms at the Tivoli were flooded, and that approximately \$50 worth of damage was done, all due to leaks in the roof.

He reports that this is not an isolated occurrence, but that at every heavy rain the same trouble is experienced, to the great damage and detriment of the hotel and its guests.

Can not some steps be taken to prevent this?

Very truly,

R. E. WOOD, *Acting Manager.*

Mr. W. M. BELDING,
Master Builder, Building.

[Memorandum to Mr. Culbertson, Acting Master Builder.]

DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
September 19, 1907.

You are authorized to screen the verandas of the Corozal Hotel, as recommended by the Chief Sanitary Officer. Your estimate of \$2,000 seems rather high. Upon the completion of this work, let me know the number of square feet of screening placed, and the total cost of labor and material.

H. H. ROUSSEAU,
Head of Department of Building Construction.

DEPARTMENT OF LABOR, QUARTERS, AND SUBSISTENCE,
Culebra, October 7, 1907.

DEAR SIR: While you are cementing the kitchen verandas of the Cristobal Hotel we would like to have you put a cement platform on the ground directly behind the kitchen on which to place garbage cans, and to run a cement drain from this platform to the street. It is requested also that you extend the roof over this platform as far out as the roof of the boiler house goes.

This work will make the place much more sanitary, and will also add to the appearance of the hotel, which is an important consideration, owing to the location of the hotel.

Very truly,

Mr. W. M. BELDING,
Master Builder, Building.

JACKSON SMITH, Manager.

OCTOBER 7, 1907.

Approved:

G. W. G.

Mr. Rousseau subsequently transmitted the following revised estimates for insertion in the record:

ISTHMIAN CANAL COMMISSION,
DEPARTMENT OF CONSTRUCTION AND ENGINEERING,
Culebra, C. Z., November 18, 1907.

MY DEAR MR. CREMER: I hand you herewith as requested:

(A) Revised estimate of salaries and wages for employees in the Division of Municipal Engineering, for the fiscal year 1908-9, replacing the estimates on pages Nos. 48 and 49 of the printed estimates. The changes from the printed estimates result from the omission of the following:

1 Resident Engineer	\$3,600
1 blacksmith	1,500
3 water inspectors	2,700
Total	7,800

The above three items omitted are found in the printed estimates as follows:

Page 5, three inspectors, \$900 each, fifth item from bottom of page.

Page 6, one Resident Engineer, \$3,600, eighteenth item from bottom of page.

This item corrected should read 5 resident engineers, instead of 6.

Page 11, two blacksmiths, at \$1,500 each, fifth item. Should read, corrected, one blacksmith, at \$1,500.

(B) Detailed distribution of salaries and wages, labor, and material, the summary of which is given on page 49 of the printed estimate and which I trust covers everything that the committee requires.

I hope that you had a very pleasant trip home and arrived with pleasant recollections of your stay here, which I regret was not longer.

I am, with regards, yours, very truly,

H. H. ROUSSEAU,
Head of Department of Municipal Engineering,
Motive Power and Machinery, and Building Construction.

Mr. JOHN D. CREMER,
Official Stenographer to Committees,
House of Representatives, Washington, D. C.

A.—Revised estimate of salary and wages for gold and silver monthly men in the Division of Municipal Engineering for the fiscal year 1908-9.

	Annual salary.	Total.		Annual salary.	Total.
Gold monthly:			Silver monthly (reduced to gold)—Continued.		
1 Division Engineer.....	\$7,500.00	\$7,500.00	3 engine drivers.....	\$1,200.00	\$3,600.00
2 assistant engineers.....	3,000.00	6,000.00	2 engine drivers.....	900.00	1,800.00
2 assistant engineers.....	2,700.00	5,400.00	3 engine drivers.....	600.00	1,800.00
2 instrument men.....	2,100.00	4,200.00	10 firemen.....	600.00	6,000.00
2 transit men.....	1,800.00	3,600.00	10 firemen.....	450.00	4,500.00
2 level men.....	1,500.00	3,000.00	4 pump men.....	900.00	3,600.00
2 level men.....	1,200.00	2,400.00	3 pump men.....	720.00	2,160.00
3 rod men.....	1,000.00	3,000.00	5 pump men.....	600.00	3,000.00
3 rod men.....	900.00	2,700.00	5 pipe fitters.....	600.00	3,000.00
1 superintendent.....	2,400.00	2,400.00	9 axmen.....	360.00	3,240.00
3 supervisors.....	2,100.00	6,300.00	2 axmen.....	300.00	600.00
4 general foremen.....	1,800.00	7,200.00	8 watchmen.....	720.00	5,760.00
10 foremen.....	1,500.00	15,000.00	3 watchmen.....	600.00	1,800.00
5 foremen.....	1,200.00	6,000.00	1 timekeeper.....	1,200.00	1,200.00
5 foremen.....	1,000.00	5,000.00	6 timekeepers.....	900.00	5,400.00
1 assistant foreman.....	900.00	900.00	3 timekeepers.....	600.00	1,800.00
2 engine drivers.....	1,500.00	3,000.00	5 timekeepers.....	450.00	2,250.00
2 engine drivers.....	1,200.00	2,400.00	3 messengers.....	450.00	1,350.00
5 pump men.....	1,620.00	8,100.00	2 messengers.....	360.00	720.00
5 pump men.....	1,500.00	7,500.00	2 messengers.....	270.00	540.00
2 pump men.....	1,000.00	2,000.00			
1 pipe fitter.....	1,500.00	1,500.00	Total.....		220,900.00
2 pipe fitters.....	1,200.00	2,400.00	Skilled labor (hourly).....		66,200.00
1 chief clerk.....	2,400.00	2,400.00	Unskilled labor (hourly).....		209,000.00
1 time clerk.....	2,400.00	2,400.00			
1 clerk.....	2,100.00	2,100.00			526,100.00
5 clerks.....	1,500.00	7,500.00			
1 timekeeper, general.....	1,800.00	1,800.00	Material and supplies:		
2 timekeepers.....	1,200.00	2,400.00	Tools.....		13,000.00
1 draftsman.....	2,100.00	2,100.00	Brick, lumber, cement, and broken stone.....		73,500.00
			Coal, fuel, and incidentals.....		76,000.00
			Office furniture and engineering instruments.....		3,600.00
					166,100.00
			Total.....		692,200.00
Silver monthly (reduced to gold):					
6 foremen.....	1,200.00	7,200.00			
10 foremen.....	900.00	9,000.00			
6 foremen.....	840.00	5,040.00			
11 foremen.....	720.00	7,920.00			
6 foremen.....	600.00	3,600.00			
10 foremen.....	450.00	4,500.00			
2 foremen.....	360.00	720.00			
1 engineer's helper.....	600.00	600.00			

B.—Distribution of estimate, Division of Municipal Engineering, for fiscal year 1908-9.

Description.	Salaries and wages.	Labor.		Material.	Total.
		Skilled.	Unskilled.		
Division Office.....	\$30,000.00			\$2,400.00	\$32,400.00
PANAMA RESIDENCY.					
Office, timekeeping, engineering, and drafting force (pro rated).....	24,000.00			1,800.00	25,800.00
Ancon Pumping Station and Filtration Plant.....	6,370.00	\$4,590.00	\$3,000.00	29,480.00	43,440.00
Street Work, Panama.....			3,000.00	2,000.00	5,000.00
Zone Highways:					
Maintenance, Ancon, La Boca, and Corozal, 9 miles at \$200 per mile.....	500.00		1,000.00	300.00	1,800.00
Additional work, La Boca and Ancon.....	2,000.00		2,000.00	1,000.00	5,000.00
Paraiso and Zone Line Roads, 8,250 feet—16 feet wide.....	7,500.00		11,070.00	23,600.00	42,170.00
Sewers (new construction), entire residency, 26,400 feet.....		2,000.00	20,350.00	7,870.00	30,220.00
Water works (new construction): 18,500 feet various and 3,000 feet—20 inches, 500,000-gallon reservoir and pipe lines, Ancon, and fire protection installations.....	8,000.00	5,450.00	41,430.00	10,720.00	65,600.00
Miscellaneous: Handling material, transportation, repairs, etc.....	5,300.00	3,300.00			8,600.00
Total, Panama Residency.....	53,670.00	15,340.00	81,850.00	76,770.00	227,630.00
EMPIRE RESIDENCY.					
Maintenance and alterations of pumping stations, Cuacacha, Culebra, and Camacho.....	26,201.00	16,693.00	4,730.00	8,340.00	54,964.00

B.—Distribution of estimate, Division of Municipal Engineering, etc.—Continued.

Description.	Salaries and wages.	Labor.		Material.	Total.
		Skilled.	Unskilled.		
EMPIRE RESIDENCY—continued.					
Road construction and maintenance.....	\$20,960.00	\$0,965.00	\$23,898.00	\$12,988.34	\$67,811.00
Water and sewer system construction and maintenance.....	5,677.00	6,400.00	8,760.00	6,255.00	27,092.00
Office, supervision, engineering, and time-keeping (pro rated).....	7,130.00	1,860.00	500.00	2,800.00	12,290.00
Total, Empire Residency.....	58,968.00	34,915.00	37,898.00	30,383.34	162,157.34
BAS OBISPO RESIDENCY.					
Road construction and maintenance.....	11,360.00	7,865.00	14,023.00	3,328.33	36,576.33
Water and sewer construction and maintenance, and maintenance, operation, and necessary renewals of pumping stations at Bas Obispo, Gorgona, Gatun, and Tabernilla.....	40,842.00	20,932.00	32,966.00	26,020.00	120,760.00
Total, Bas Obispo Residency.....	52,202.00	28,797.00	46,989.00	29,348.33	157,336.33
COLON RESIDENCY.					
Office, engineering, timekeeping, etc. (pro rated).....	8,000.00	460.00	600.00	1,600.00	10,660.00
Colon sewer extensions.....	700.00	1,000.00	6,500.00	4,500.00	12,700.00
Colon waterworks and portion of maintenance pumping station.....	700.00	2,000.00	4,500.00	7,040.00	14,240.00
Extensions in Folks River district.....	2,200.00	1,460.00	8,000.00	5,200.00	16,860.00
Extensions in Mount Hope district to corrals, warehouses, etc.....	2,100.00	1,900.00	4,500.00	4,000.00	12,500.00
Cristobal: Maintenance of water works and sewer systems, fire protection, and street work.....	1,000.00	2,460.00	4,150.00	1,536.00	9,140.00
Total, Colon Residency.....	14,700.00	9,280.00	28,250.00	23,870.00	76,100.00
Broken stone from Rio Grande Crusher furnished to other Divisions.....	11,360.00	7,865.00	14,023.00	3,328.33	36,576.33

SUMMARY FOR THE DIVISION.

Division Office.....	\$30,000.00			\$2,400.00	\$32,400.00
Panama Residency.....	53,670.00	\$15,340.00	\$31,850.00	76,770.00	227,630.00
Empire Residency.....	58,968.00	34,915.00	37,898.00	30,383.34	162,157.34
Bas Obispo Residency.....	52,202.00	28,797.00	46,989.00	29,348.33	157,336.33
Colon Residency.....	14,700.00	9,280.00	28,250.00	23,870.00	76,100.00
Stone for other Divisions.....	11,360.00	7,865.00	14,023.00	3,328.33	36,576.33
Total.....	220,900.00	96,200.00	209,000.00	166,100.00	692,200.00

Colonel GOETHALS. Mr. Smith wants to make a slight correction in the table of estimates as it appears in the estimates for his department.

ADDITIONAL STATEMENT OF MR. JACKSON SMITH, COMMISSIONER AND MANAGER OF DEPARTMENT OF LABOR, QUARTERS, AND SUBSISTENCE.

TRANSPORTATION AND RECRUITING.

Mr. SMITH. On page 17, in the estimate for the Department of Labor, Quarters, and Subsistence, I have underestimated in numbers, transportation and recruiting. I have 4,000 West Indians at \$15

each. That is correct. I have 3,075 Europeans at \$40 each, and I want to change that to 2,000 Europeans at \$40 each, a total of \$80,000; and instead of 800 gold men at \$20 each I want 2,000 gold men at \$50 each, making \$100,000.

The CHAIRMAN. Eight hundred gold men at \$50 each?

Mr. SMITH. Yes, instead of 800, I want 2,000 gold men. The \$20 rate on the Panama Railroad Steamship Company applies only to employees on leave, and for our contract employees, where we bring them down, we pay half of the first-class rate. That is by a law of the Commission.

STEAMSHIP TRANSPORTATION.

The CHAIRMAN. Mr. Smith, right there, is the Panama Railroad Company able to afford the transportation of men who are either originally employed or those who are returning to the Zone and who have been away on leave? Are their facilities sufficient?

Mr. SMITH. They are meeting conditions very well now, sir. They occasionally have a congestion.

The CHAIRMAN. Is it not a fact that recently the Canal Commission or the Government has been obliged to engage passage for employees, either original employees or employees returning after a vacation, on other steamship lines plying between New York and Colon?

Mr. SMITH. They have on account of an accident to one of the regular line of steamships.

The CHAIRMAN. That is purely due to an accident?

Mr. SMITH. Yes, sir. I think with all the steamships in the service and in repair that they will very nearly meet the demand.

The CHAIRMAN. Now when we send an employee down here to go to work, his transportation and subsistence and everything are furnished?

Mr. SMITH. Yes, sir.

The CHAIRMAN. Now if he can not get accommodation on the Panama Railroad Steamship Line, he is given transportation on a commercial line?

Mr. SMITH. Yes.

The CHAIRMAN. At what rate?

Mr. SMITH. The Panama Railroad pays the difference.

The CHAIRMAN. At what rate? What do you pay on the commercial line?

Mr. SMITH. That is an arrangement that the Panama Railroad makes, and it is something that I am not familiar with.

The CHAIRMAN. Does the Panama Railroad Company pay the difference?

Mr. SMITH. It is a contract between the Panama Railroad and the Commission, and it is only fair that they should pay it.

The CHAIRMAN. My understanding is that the Panama Railroad Company pays \$30—that is, the cost of transportation—and the Isthmian Canal Commission pays \$20, which is the cost of subsistence. Am I correct?

Mr. SMITH. No, sir. There is no division of the rate on that basis. If they send our people down on an outside ship they collect from

us only the rate that we have contracted to pay them as though they came down on our ships.

LOCAL TRANSPORTATION AND REPATRIATION.

Now, you are asking me if the accommodations are ample. I was going to make an explanation. There is a percentage of our people from the southern part of the United States that want transportation facilities through New Orleans. That we are trying to arrange. That is for people who are independent or going or returning on leave. I had estimated for local transportation \$2,000, and I want to change it \$10,000. I had estimated for repatriation \$24,000, and I want to change it to \$25,000. That would make a total of \$275,000 instead of \$235,000. To begin that, I have got from \$60,000 to \$80,000 which will come back from these 2,000 Europeans in the nature of a deduction, so that it does not increase my total. In other words, it will reduce it.

The CHAIRMAN. By how much?

Mr. SMITH. It will reduce it from \$10,000 to \$20,000. But I wanted to get my estimate of the number of men corrected, particularly. I might have had money enough, but I want to go on the record as to the fact that I have underestimated in one case and overestimated in another as to the number of individuals.

Mr. KEIFER. In the case of repatriation they are not prepaid back?

Mr. SMITH. Not unless they are desired.

EUROPEAN LABOR.

Mr. GARDNER. I want to ask if you employ Europeans for other than common white labor?

Mr. SMITH. No, sir.

Mr. MADDEN. Are there no mechanics?

Mr. SMITH. The mechanics who may appear here from time to time?

Mr. MADDEN. Yes.

Mr. SMITH. Yes, sir.

Mr. GRAFF. Have there not been some English from Jamaica engaged in trade, white men, Englishmen from Jamaica?

Mr. SMITH. They come voluntarily. They just come here, and if we need them we take them on.

LOCAL TRANSPORTATION AND REPATRIATION (AGAIN).

Mr. MADDEN. You said something about arranging transportation for the people who are here from the southern part of the United States. Is it proposed to pay a greater amount for their transportation than you have already contracted to pay to the ship companies?

Mr. SMITH. No, sir. The steamship companies plying between here and New Orleans charge a higher rate. We are trying to get that equalized, so that a man going to the Central West or the territory around St. Louis or Kansas City can go back through New Orleans for what he goes through to New York for.

ADDITIONAL STATEMENT OF MR. W. G. TUBBY, CHIEF OF DIVISION OF MATERIAL AND SUPPLIES, DEPARTMENT OF CONSTRUCTION AND ENGINEERING.

CORRALS.

The CHAIRMAN. Mr. Tubby, you have charge of the corrals?

Mr. TUBBY. Yes, sir.

The CHAIRMAN. What does that include?

Mr. TUBBY. That includes all the animal transportation on the Isthmus.

The CHAIRMAN. What is the total number of horses and mules that we have?

Mr. TUBBY. The total number of horses is 175; mules, 460.

The CHAIRMAN. Are the cows under your jurisdiction, too?

Mr. TUBBY. No, sir, but I furnish the feed.

The CHAIRMAN. How many cows have we?

Mr. TUBBY. I think we purchased 38.

The CHAIRMAN. Who has them under his charge?

Mr. TUBBY. The hospital department, the Sanitary Department.

Mr. GARDNER. Where are these cows brought from?

Mr. TUBBY. From the United States.

Mr. GARDNER. How do they do here?

Mr. TUBBY. Very well, as I understand.

Mr. GARDNER. You have not lost any?

Mr. TUBBY. Not that I know of.

FORAGE.

The CHAIRMAN. You estimate for forage for 750 animals?

Mr. TUBBY. Yes; 735.

The CHAIRMAN. Seven hundred and fifty animals is what the estimates say.

Mr. MADDEN. They have only got 635?

Mr. TUBBY. Yes.

The CHAIRMAN. That is the number you have now?

Mr. TUBBY. Yes.

The CHAIRMAN. You propose increasing it?

Mr. TUBBY. Yes, I anticipate an increase as the work progresses.

The CHAIRMAN. In what particular part of the work do we employ horses and mules?

Mr. TUBBY. In Municipal Engineering, Building Construction, Labor and Quarters, Sanitary Department, time inspectors, and in the Commissary.

The CHAIRMAN. None of those departments is likely to increase very much in the next fiscal year, is it?

Mr. TUBBY. Not that I know of, except perhaps the Commissary, and Labor and Quarters, and the Sanitary, with garbage carts removing the garbage, and as these towns increase in size and require larger deliveries and more deliveries of supplies from the Commissary.

The CHAIRMAN. When were these estimates in regard to forage made, including hay and oats?

Colonel GOETHALS. I think in July. A cable from the Secretary required the estimates to reach Washington by the 15th of August, so that they were rushed along.

The CHAIRMAN. Do you take into account the enormous increase in the price of hay raised in Texas and oats raised in other States?

Mr. TUBBY. No, sir; I figured on the prices we were then paying.

Mr. BURLESON. There has been a diminution of price.

Mr. MADDEN. What are you paying?

Mr. TUBBY. A very good ordinary price.

Mr. BURLESON. Mr. Tubby, you have a fairly good equipment for the animals now in use, have you not?

Mr. TUBBY. Yes, sir.

VEHICLES, HARNESS, ETC.

Mr. BURLESON. What is the necessity for this new equipment?

Mr. TUBBY. For new animals, for the increased number. I had to increase the estimate on carts and wagons and harness in order to equip the horses and mules, should it be necessary to purchase a further supply. Of course if we are not required to increase the number, we will not purchase.

STATIONERY AND SUPPLIES, DIVISION OF MATERIAL AND SUPPLIES.

The CHAIRMAN. Did you make this estimate here for stationery and supplies in this department, \$5,000?

Mr. TUBBY. Yes.

The CHAIRMAN. Under the division of corrals you require \$5,000?

Mr. TUBBY. No; no. That is for the entire department; all the stores and all the offices in the Division of Material and Supplies.

The CHAIRMAN. What additional office equipment will you require that you estimate \$5,000 for?

Mr. TUBBY. Well, increase of furniture.

The CHAIRMAN. Do you expect in the next fiscal year to very materially increase your force of employees?

Mr. TUBBY. No; except as there might be a number of stores opened up as the force develops.

The CHAIRMAN. You furnish the sub-stations, as it were, with the office rent?

Mr. TUBBY. Yes, sir.

PRINTING OFFICE.

The CHAIRMAN. Who runs the printing establishment connected with the Panama Canal Commission?

Mr. TUBBY. The Division of Supplies, connected with my department.

The CHAIRMAN. What printing do you do?

Mr. TUBBY. All the forms and all the printing required by the Isthmian Canal Commission, and a great deal for the Panama Railroad.

The CHAIRMAN. Do you charge that to the Panama Railroad?

Mr. TUBBY. Yes.

The CHAIRMAN. How many people have you employed in the printing division?

Mr. TUBBY. About 49 altogether.

The CHAIRMAN. What rate of pay do they receive?

Mr. TUBBY. A great deal of our labor is Panamanian labor. We pay some 30 cents, some 40, some 20 cents; that is, silver.

The CHAIRMAN. An hour?

Mr. TUBBY. An hour; and some 50 cents.

The CHAIRMAN. Have you typesetting machines?

Mr. TUBBY. No, but we have a gasoline power plant.

The CHAIRMAN. Do you set your type by hand?

Mr. TUBBY. By hand.

The CHAIRMAN. Are the Panamanians proficient in typesetting in English?

Mr. TUBBY. Yes; they are very good.

The CHAIRMAN. In English.

Mr. TUBBY. Yes. Then we have some Jamaicans who speak English, who work in the printing office. They are typesetters, and we have a number of Panamanian women who are doing bookbinding and ruling.

The CHAIRMAN. Have you much bookbinding?

Mr. TUBBY. Not very much bookbinding, but a good deal of binding pads, which you might call backing.

The CHAIRMAN. You have about 40 people employed in the printing office?

Mr. TUBBY. Forty-nine. We have 14 presses running continuously.

The CHAIRMAN. Power presses?

Mr. TUBBY. Power presses and hand presses, or foot.

The CHAIRMAN. Do you publish the Canal Record?

Mr. TUBBY. I do.

CONSOLIDATION OF MEDICAL STOREHOUSE WITH GENERAL STOREHOUSE.

The CHAIRMAN. I want to ask you if, in your judgment, it would be practicable to consolidate the storehouse maintained at Colon or near Colon—Mount Hope, or somewhere there—by the Sanitary Department with your storehouse?

Mr. TUBBY. And do away with the—

The CHAIRMAN. I am asking this question of you without any consultation at all. If there is anybody here who wants to criticise, they can criticise me. I mean the consolidation of the Sanitary Department storehouse for medical supplies which comes under the jurisdiction of the Sanitary Department with your storehouse.

Mr. TUBBY. There would be no trouble in consolidating it. The storehouse, however, would have to be maintained on the Colon grounds for the medical supplies.

The CHAIRMAN. Have you not room in your storehouse to keep those supplies?

Mr. TUBBY. Yes, everything but the drugs. We could find room for storing all the material, but the issuing out of the drugs, I should think, would be better done, better handled, at the hospital.

The CHAIRMAN. Requisition is made from the hospital on the storehouse?

Mr. TUBBY. I refer to the Colon Hospital.

Colonel GOETHALS. The storehouse is now at Colon Hospital—

Mr. SLIFER. Right where we got off the train the other day, Mr. Chairman.

The CHAIRMAN. Could you fill the requisitions made as promptly as those requisitions could be filled at the medical storehouse?

Mr. TUBBY. I think so. It would not make any difference what class of material it was.

Mr. MADDEN. You would have to maintain the force that is now maintained there if the matter were turned over to your jurisdiction?

Mr. TUBBY. Well, I don't know how much of a force they have there.

Mr. BURLESON. You buy drugs now?

Mr. TUBBY. We handle all the drugs.

The CHAIRMAN. He does not actually buy the drugs.

Mr. TUBBY. I should order and receive the drugs and ship them to the Sanitary Department.

Mr. TAYLOR. You did not answer whether it would require an additional force on your part to handle the drugs.

Mr. TUBBY. I don't know what force they have.

Mr. MADDEN. You would not handle them with the present force, would you?

Mr. TUBBY. No; I don't think I could, because I would have a medical man to handle the drugs.

STATEMENT OF MR. HIRAM J. SLIFER, GENERAL MANAGER, PANAMA RAILROAD COMPANY.

The CHAIRMAN. Mr. Slifer, you are the General Manager of the Panama Railroad Company?

Mr. SLIFER. Yes, sir.

The CHAIRMAN. We have here on page 15 an estimate "To continue the equipment and construction of the Panama Railroad, to be disbursed directly under the Isthmian Canal Commission," and accompanying the estimate is a note—

Item 6.—To continue the equipment and construction of the Panama Railroad, to be disbursed directly under the Isthmian Canal Commission, \$1,213,940; no part of said sum shall be expended until the obligation of the Panama Railroad Company for the full amount thereof and drawing 4 per cent interest payable to the United States shall have been delivered to the Secretary of the Treasury of the United States and by him accepted, \$1,213,940.

Will you please explain to the Committee the necessity for the equipment that is estimated for in this item?

REFRIGERATOR CARS.

Mr. SLIFER. The first item of refrigerator cars is needed in connection with handling commissaries across the Isthmus, and in that item there is an error of \$30,000. The estimate for 8 refrigerator cars should be \$10,000. The way that error occurred was that the original estimate handed me on the day I arrived on the Isthmus called for 4 refrigerator cars at \$1,250 apiece, or \$5,000. After learning that we were just making a contract to handle a lot of refrigerated vegetable material, I ordered the clerk to change that to eight

cars, and through a misapprehension he multiplied \$5,000 by eight and inserted the item, whereas the price should be \$1,250 each, and the eight would amount to \$10,000.

FIRST-CLASS COACHES.

The 4 first-class coaches are needed to replace old coaches that are rapidly wearing out.

The CHAIRMAN. Do you estimate that the 4 first-class coaches would cost \$33,440.

Mr. SLIFER. Yes, sir. That is based on experience of some first-class coaches erected in the past year. They are worth perhaps about \$6,000, but they come here in knock-down shape, and it costs from \$800 to \$1,000 each to erect them. The experience of box cars was that the cars were all set up in the States.

The CHAIRMAN. These coaches are not of the size of the coaches used in the States?

Mr. SLIFER. They are longer, and of course they are a wider coach.

The CHAIRMAN. I do not think they are quite as expensive in construction.

Mr. SLIFER. The later coaches are.

Colonel GOETHALS. The new coaches are.

Mr. SLIFER. They are longer and wider, and the fittings are better, Mr. Chairman. We have the modern brass baggage rail all through the car on both sides.

The CHAIRMAN. Where are they being constructed?

Mr. SLIFER. I do not know who is building them.

The CHAIRMAN. You have not let the contract yet?

Mr. SLIFER. Not on this.

BAGGAGE CARS.

The CHAIRMAN. The next item is 5 baggage cars.

Mr. SLIFER. Those are needed in handling mail and express.

The CHAIRMAN. Is a baggage car more expensive than the ordinary railway postal car?

Mr. SLIFER. No, sir.

The CHAIRMAN. I understand they are constructed in the States for \$4,000 apiece.

Mr. SLIFER. The ordinary postal car, I imagine, in this country would cost all of \$5,000 or \$6,000.

BOX CARS.

The CHAIRMAN. Go ahead. The next is 200 80,000-pound box cars.

Mr. SLIFER. That is based on some cars that have been purchased during the past year. They are to replace cars not now provided with automatic couplers and of 24,000 pounds' capacity. They are expensive to operate. I think you gentlemen saw a lot of small cars without the automatic couplers on the train we met at Gorgona the other day. They wear out in the service pretty rapidly.

The CHAIRMAN. Do you use nothing but automatic couplers?

Mr. SLIFER. We have to use some with the link-and-pin, and we are trying to get rid of those and bring in these new box cars.

The CHAIRMAN. Are the new cars equipped with these automatic couplers?

Mr. SLIFER. Yes, sir.

CABOOSE CARS.

These caboose cars are to replace some that are too small and wearing out.

The CHAIRMAN. Where do you get the estimate of that?

Mr. SLIFER. That is estimated by the Mechanical Department.

COAL LIGHTERS.

The coal lighters are for the purpose of transferring coal from the Brown and Hart plants to our ships lying in the various docks—not only our own, but those of other lines to whom we furnish coal.

DOCK.

The dock estimated for there is a permanent dock, to be located at Cristobal.

The CHAIRMAN. You are going to put a dock in at Cristobal?

Mr. SLIFER. Yes, alongside of our present dock, so as to have it inside American waters. The docks of the Hamburg-American line and other lines are all in Colon waters, and they are in such condition that in a short time they will have to be rebuilt.

The CHAIRMAN. Is this intended to rebuild your present dock at Cristobal, or at another location, a new dock?

COAL-HANDLING PLANT.

Mr. SLIFER. It is intended to build an inland dock in another location. The final location has not been decided upon. The coal-handling plant is a duplicate of our present plant, to be located on this permanent dock.

NEW QUARTERS FOR EMPLOYEES.

The CHAIRMAN. Now the last item is new quarters for employees, \$100,000. Are those to take the place of old quarters?

Mr. SLIFER. No, sir; they are to provide for people who are now on our lists under contract who are asking for quarters.

The CHAIRMAN. When did the Panama Railroad Company adopt the policy of furnishing quarters to their employees?

Mr. SLIFER. I believe about the time the Isthmian Canal Commission did, sir.

Mr. GARDNER. Will these be located on the line of the relocated railroad?

Mr. SLIFER. Most of these will be located in the neighborhood of Cristobal, and some few at Colon. We are fixing up some of the old shop buildings at Colon for family quarters.

Mr. GRAFF. These are for family quarters, are they?

Mr. SLIFER. Yes, sir.

The CHAIRMAN. How many?

Mr. SLIFER. At the present time we are fixing up eight.

The CHAIRMAN. How many do you contemplate fixing up or building out of this \$100,000?

Mr. SLIFER. Well, at the rate at which they are built down here, it would not build very many. I should not imagine there would be over 20 of them built.

The CHAIRMAN. Where do you intend to build them?

Mr. SLIFER. More particularly in the neighborhood of Cristobal, the end of our freight line. That is where I would naturally expect to build them.

The CHAIRMAN. What wages do you pay your locomotive engineers?

Mr. SLIFER. I could not give you that, sir.

Colonel GOETHALS. The same rate as the Commission's engineers. The locomotive engineers and the steam-shovel men are getting the same rate of pay.

Following are documents filed by Mr. Slifer:

Please furnish a statement showing, as much in detail as possible, the disposition of the commercial earnings of the Panama Railroad Company during the fiscal year 1907, and during the first three months of the current fiscal year.

Operation of Panama Railroad and Steamship Line for months of July and August, 1906-7:

	1907.	1906.
RAILROAD.		
Total gross earnings.....	\$729,391.80	\$461,029.89
Total gross expenses.....	\$626,032.18	\$308,648.23
Total net earnings.....	\$303,359.62	\$152,381.66
Conducting transportation expenses.....	\$188,979.16	\$160,947.63
Maintenance of equipment.....	\$37,871.89	\$35,919.95
Maintenance of way and structures.....	\$35,986.30	\$17,938.79
General expenses.....	\$26,245.73	\$23,877.07
Water terminal expenses.....	\$36,271.00	\$37,952.88
Real estate.....	\$5,477.20	\$1,906.91
Freight earnings:		
Through, commercial.....	\$245,462.44	\$168,246.89
Local, commercial.....	\$71,801.59	\$47,789.94
Local, Isthmian Canal Commission.....	\$165,982.20	\$64,870.49
Total.....	\$483,196.11	\$310,904.32
Earnings per ton:		
Through, commercial.....	\$1.21	\$3.44
Local, commercial.....	\$3.08	\$8.02
Local, Isthmian Canal Commission.....	\$1.88	\$2.08
All freight, including company.....	\$2.45	\$2.66
Through commercial freight handled..... tons.....	76,502	48,815
Local commercial freight handled..... do.....	23,703	15,814
Local Isthmian Canal Commission freight handled..... do.....	88,007	46,532
Company freight handled..... do.....	9,249	5,817
Freight train mileage.....	88,557	29,087
Passenger train mileage.....	22,337	27,529
Passengers handled, revenue:		
Through.....	\$4,661.52	\$5,441.39
Local.....	\$56,041.55	\$22,734.35
Isthmian Canal Commission.....	\$22,000.00	\$10,000.00
Total passengers, baggage, mail, treasure, and express revenue.....	\$115,904.41	\$64,079.78
Number of passengers carried.....	214,153	117,482
STEAMSHIPS.		
Total gross earnings.....	\$298,344.83	\$225,700.67
Total expenses.....	\$298,482.58	\$214,771.86
Total net earnings.....	* \$10,137.72	\$11,018.81
General expenses:		
New York.....	\$3,285.01	\$4,124.21
Isthmus.....	\$6,406.89	\$7,563.51
Steamer expenses.....	\$221,393.70	\$165,910.41
Agency expenses.....	\$24,921.76	\$19,680.41
Charter of steamers, expenses.....	\$42,506.22	\$17,498.32

478 HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Inventory and value of equipment November 1, 1907.

29 switching locomotives, 25 road locomotives.....	\$384,000.00
17 first-class coaches, 21 second-class coaches, 8 combination cars, 7 miscellaneous passenger cars.....	234,249.00
475 old box cars, 24,000 pounds capacity; 54 old box cars, 48,000 pounds capacity; 118 old coal cars, 24,000 pounds capacity; 57 old flat cars, 24,000 pounds capacity; 10 old cabooses, 42 old miscellaneous.....	161,120.00
10 new stock cars, 80,000 pounds capacity; 10 new refrigerator cars, 80,000 pounds capacity; 12 new caboose cars; 481 new box cars, 80,000 pounds capacity; 100 new Roger ballast cars, 80,000 pounds capacity; 15 new coal cars, 80,000 pounds capacity.....	665,835.00
Miscellaneous equipment.....	29,808.00
Total.....	1,475,012.00

Operation of Panama Railroad and Steamship Line for year ending June 30, 1907.

Gross earnings, railroad operation:

Freight—

Colon to Panama—	
Through, from New York.....	\$393,843.13
Through, from New Orleans.....	27,737.97
Through, from Europe.....	443,006.33
Local, commercial.....	282,931.92
Local, Isthmian Canal Commission.....	485,855.19
	<u>\$1,633,374.54</u>

Panama to Colon—

Through, to New York.....	197,597.78
Through, to New Orleans.....	
Through, to Europe.....	237,538.14
Local, commercial, La Boca-Panama.....	5,668.48
Local, commercial, Panama-Colon.....	56,517.74
Local, Isthmian Canal Commission.....	258,630.39
	<u>755,952.53</u>
	<u>2,389,327.07</u>

Passengers—

From New York.....	12,373.79
From Europe.....	6,293.82
Local ^a	151,603.65
	<u>170,271.26</u>
To New York.....	6,936.26
To Europe.....	5,651.26
Local ^a	143,717.51
	<u>156,305.03</u>
	<u>326,576.29</u>

Mails, baggage, treasure, and express.....	168,906.65
Lighterage, water supplied, rentals, wharfage, ^b crannage, stores, telegraph, switching, and other miscellaneous.....	754,090.20
Total railroad earnings.....	<u>3,638,900.21</u>

^a Isthmian Canal Commission paid approximately \$100,000 for local transportation.

^b Wharfage, Panama and La Boca, amounted to \$230,883.54.

Gross earnings, steamship operations:

From freight	\$945, 172. 60	
From passengers	394, 388. 26	
From mails	192, 334. 21	
From baggage, treasure, and miscellaneous	29, 015. 32	
Total steamship earnings		\$1, 560, 910. 48
Grand total earnings		<u>5, 199, 810. 69</u>

General expenses, railroad operation:

General expenses—		
New York		\$53, 119. 50
Isthmus		<u>86, 414. 13</u>

Conducting transportation—

Engineers, firemen, roundhouse men	\$116, 540. 09	
Fuel, oil, waste, etc	82, 256. 14	
Trainmen and supplies	110, 048. 55	
Terminal freight agents and labor	252, 516. 52	
Switchmen, yard men, local agents, and supplies	228, 331. 48	
Miscellaneous	119, 135. 88	
		<u>\$ 1, 008, 614. 69</u>

Maintenance of equipment—

Locomotive repairs and renewals	83, 089. 95	
Passenger repairs and renewals	33, 152. 32	
Freight repairs and renewals	108, 762. 79	
Work-car repairs and renewals	29, 480. 40	
Shop-machinery repairs and renewals	28, 417. 94	
Shop expenses	29, 363. 54	
Miscellaneous	20, 691. 19	
		<u>332, 958. 13</u>

Maintenance of way—

Roadway and track repairs and renewals	196, 162. 38	
Rail and fastenings	39, 695. 38	
Switches and frogs	7, 657. 30	
Ties	29, 844. 52	
Bridges and culverts, repairs and renewals	15, 378. 55	
Telegraph repairs and renewals	18, 781. 59	
Station, shop, and other buildings, repairs and renewals	53, 302. 69	
Employees' quarters, repairs and renewals	59, 706. 98	
Miscellaneous	36, 039. 98	
		<u>456, 569. 32</u>

Lighterage, loading, and discharging vessels—

Fuel, water, and insurance	9, 956. 79	
Miscellaneous labor and wages of crews	40, 414. 80	
Tugs, lighters, cranes, etc., operation, repairs, renewals, and supplies	122, 398. 23	
Depreciation of tugs and lighters	35, 066. 35	
Docks and wharves, repairs and renewals	52, 869. 35	
Miscellaneous	10, 645. 48	
		<u>270, 851. 00</u>

Total railroad operating expenses

2, 208, 526. 77

Operating expenses, steamship operation:

General expense—		
New York		24, 149. 76
Isthmus		<u>39, 068. 84</u>
Terminal expenses—		
Buildings and docks, repairs, rents, etc	52, 876. 42	
Agents, labor, etc	67, 498. 42	
Miscellaneous	12, 637. 16	
		<u>133, 062. 00</u>

^a Less credit \$213.97 account water supply Credit.

480 . HEARINGS CONCERNING CONSTRUCTION OF ISTHMIAN CANAL.

Operating expenses, steamship operation—Continued.

Steamship expenses—

Equipment, miscellaneous departments.....	\$37, 728. 90	
Repairs, miscellaneous departments.....	97, 805. 61	
Depreciation and extraordinary repairs.....	35, 805. 00	
Stores	30, 315. 36	
Custom-house, port charges, docking, pilot- age, quarantine, etc.....	30, 261. 05	
Fuel, oil, waste, and water.....	214, 994. 34	
Feeding passengers and crews.....	141, 534. 89	
Labor on cargo, coal, ashes, etc.....	216, 598. 93	
Wages	207, 969. 75	
Insurance	56, 484. 86	
Miscellaneous	82, 208. 24	
Charter of steamers	104, 960. 00	
		<u>\$1, 206, 066. 93</u>
Total steamship operating expenses.....		<u>1, 402, 847. 53</u>
Grand total, railroad and steamship operating ex- penses		<u>3, 610, 874. 30</u>

BALANCE SHEET.

Net earnings over and above cost of operation.....	1, 049, 551. 56
Borrowed from United States Government.....	1, 197, 892. 77
Total	<u>2, 247, 444. 33</u>
Expenditures as per following list.....	<u>2, 198, 983. 23</u>
Balance added to cash on hand.....	<u>58, 461. 10</u>

Power and equipment:

Box cars.....	\$518, 496. 74	
Ballast cars.....	156, 935. 10	
Coal cars.....	16, 082. 48	
Stock cars.....	12, 664. 99	
Miscellaneous	3, 542. 66	
Depreciation	59, 553. 00	
		<u>787, 274. 97</u>

Completed:

Buildings, etc.—

Electric light and refrigerator plants.....	3, 461. 97	
Improvements of piers, docks, etc.....	97, 666. 54	
Employees' quarters.....	38, 325. 20	
Commissary buildings.....	1, 445. 11	
Water and fuel stations.....	12, 667. 08	
Stations, section houses, etc.....	31, 324. 26	
Brown hoist coal plant.....	23, 119. 25	
Cristobal machine shop building.....	13, 126. 62	
Colon office building.....	36, 651. 24	
		<u>257, 787. 27</u>

Uncompleted:

Buildings, etc.—

Electric light and refrigerator plants.....	\$338, 131. 58	
Improvements of piers, docks, etc.....	43, 029. 44	
Employees' quarters.....	19, 894. 64	
Commissary building.....	39, 252. 71	
Water and fuel stations.....	6, 374. 94	
Stations, section houses, etc.....	16, 451. 05	
Cristobal machine shop buildings.....	77, 742. 57	
Depreciation	8, 231. 50	
		<u>554, 106. 43</u>

Uncompleted—Continued.

Floating equipment—	
Refrigeration and electric-light plants, SS.	
<i>Finance and Advance</i>	\$33,698.62
6 new lighters at Colon. (Sold to I. C. C.)	42,674.46
Rebuilding SS. <i>Alliance</i> (uncompleted)---	2,826.26
Depreciation.....	115,011.98
	<hr/>
	\$196,211.32
New yards and sidings—	
La Boca new yard.....	60,347.88
Gatun new yard.....	10,635.96
Miscellaneous passing tracks.....	34,128.65
House tracks, cross-overs, etc.....	102,208.99
Colon and Cristobal tracks.....	171,526.11
Second main line, La Boca Junction to Y....	26,727.74
	<hr/>
	406,575.33
New plant—	
Completed work.....	5,113.80
Uncompleted.....	7,912.11
	<hr/>
	13,025.91
Total renewals and extraordinary ex-	
penses.....	2,193,983.23

COMPARISONS, 1907-1906.

RAILROAD.		Percentage of increase.
Gross revenue receipts.....		41.55
Operating expenses.....		15.88
Earnings over operating expenses.....		49.54
		<hr/>
Tons carried:		
Southbound.....		56.17
Northbound.....		15.79
		<hr/>
Total tons carried.....		40.65
		<hr/>
All revenue tonnage.....		43.80
Revenue derived from all tonnage.....		39.04
Gross earnings per ton moved:		
Southbound.....		*10.56
Northbound.....		11.21
Both directions.....		3.28
Passengers handled:		
First class.....		153.45
Second class.....		72.80
All classes.....		96.84
Passenger earnings:		
First class.....		75.79
Second class.....		52.00
All classes.....		63.17
Through passenger:		
Revenue.....		3.10
Number carried.....		8.69
Local passenger:		
Revenue.....		73.89
Number carried.....		98.22
Miscellaneous receipts.....		49.91
Expenses conducting transportation.....		10.27
Tonnage handled.....		40.65
Expenses:		
Maintenance of equipment.....		140.30
Maintenance of way and structures.....		32.68

* Decrease.

STEAMSHIP.

	Percentage of increase.
Total earnings.....	15.88
Freight traffic:	
Tons	8.36
Revenue	11.38
Passenger traffic:	
Number carried.....	25.85
Revenue	24.70
Mail transportation:	
Revenue	23.18
Operating expenses.....	1.31
Number of trips made.....	13.85
Tons carried between New York and Colon.....	8.45

MISCELLANEOUS COMPARISONS.

RAILROAD.

Increase in revenue from coal and merchandise:	
1907-1906	\$670,937.39
Southbound	\$461,464.15
Northbound	\$209,473.24
Increase in freight traffic:	
New York and New Orleans to South Pacific ports..... tons..	6,734
New York and New Orleans to Panama..... do.....	5,957
New York and New Orleans to Central America and Mexico..... tons..	5,170
Increase in Europe to Central America and Mexico..... do.....	3,262
Increase in Europe to South Pacific ports..... do.....	12,679
Decrease in freight traffic, Central America and Mexico to Europe..... tons..	171
Increase in freight traffic, South Pacific ports to Europe..... do.....	11,050
Revenue freight handled, 1907..... do.....	894,824
Company freight handled, 1907..... do.....	41,522
Mails, baggage, and express..... do.....	1,832
Total tons handled, 1907..... do.....	938,178
Percentage of southbound.....	68.36
Percentage of northbound.....	31.64
Percentage of through traffic.....	40.06
Percentage of local traffic.....	59.34
Percentage of local traffic southbound, coal.....	45.87
Through passengers carried, increase over 1906.....	902
Local passengers carried, increase over 1906.....	433,445
Passengers carried:	
First class.....	325,077
Second class.....	557,200
Total	882,277
Total Panama Railroad trains handled.....	14,830
Total Isthmian Canal Commission trains handled.....	28,626
Total all.....	43,456
Average per day.....	119
Maximum daily train movement, one point.....	196

New equipment received and erected.

	Panama Railroad.	Isthmian Canal Commission.
Locomotives.....		34
Lidgerwood flat cars, 80,000 pounds capacity.....		700
Western dump cars, 80,000 pounds capacity.....		126
Roger ballast cars, 80,000 pounds capacity.....	100	
Box cars, 80,000 pounds capacity.....	273	
Stock cars, 80,000 pounds capacity.....	10	
Caboose cars.....	12	
Passenger cars.....	11	
<hr/>		
New second main line constructed.....	miles...	27½
New rail laid, old main line.....	do.....	4½
Track reballasted.....	do.....	27
Cross-ties renewed.....	number.....	60,000
New side tracks built.....	linear feet...	96,322

Coal distribution.

	Tons.	Percent.
Panama Railroad:		
Road engines.....	17,297	8.5
Switch engines.....	6,445	3.0
Stationary engines.....	14,244	7.0
Steamships.....	3,697	2.0
Isthmian Canal Commission.....	116,588	57.0
Other steamships.....	37,887	19.0
Miscellaneous.....	7,095	3.5
Total.....	203,451	100.0

STEAMSHIPS.

Tonnage carried on company's steamers.....	108,899
Tonnage carried on chartered steamers.....	105,971

Operation of Land Department for fiscal year ending June 30, 1907:

Amount received from rentals.....	\$54,656.45
Expenses of Department.....	18,094.37
Net earnings.....	\$36,562.08
Approximate estimate of annual income from Panama Railroad lots on the Isthmus for year ending January, 1908.....	^a 120,000.00
Present average per square foot (or, \$260 per lot, 30 by 130 feet).....	6½ cents
Previous to this date the rentals averaged (or, \$100 per lot, 30 by 130 feet).....	2½ cents

^a This increase will be due to the advance in lot rentals made since January 1, 1907, particularly as they apply to Colon lots.

Lots owned and leased by the Panama Railroad.

The Panama Railroad owns and leases lots as follows:

Location.	Total number lots.	Total num- ber lots under lease.
Colon.....	3,144	789
Fox River.....	59	6
Gatun.....	207	189
Bohio.....	7	7
Frijoles.....	40	40
Empire and Culebra.....	674	432
Panama.....	415	385
Total.....	4,546	1,848

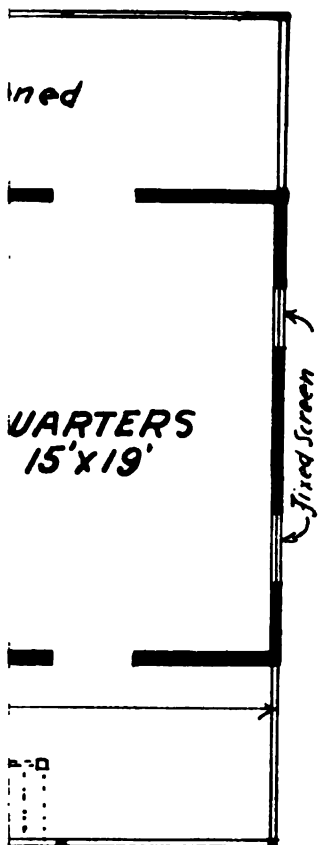
INDEX.

Accommodations for married employees.....	304
Accounts, Examiner of.....	284
Accounts, expenditure, definitions of.....	269
Acting Executive Secretary.....	378, 417
Administration of estates.....	402
Advantages and privileges to Americans.....	55, 93, 124, 133, 154, 180, 183, 206
Advertising for supplies, method of.....	263
Agreement between Col. George W. Goethals and Ricardo Arias.....	417, 419
between Secretary Taft and Secretary Arias.....	318, 319, 396
<i>Allianca</i> , lengthening of the.....	45, 48
Allotment of quarters.....	291, 304
Allowances in addition to salary.....	124, 133
American employees, number of.....	298
Ancon Hospital, enlargement of.....	358
records of.....	312, 332
patients treated in.....	318, et seq., 361
Ancon, the.....	162, 163
Animal transportation.....	224, 471
Annual leave.....	217
Anopheles mosquito.....	315
Appendix T, Report of Consulting Board.....	45
Appraisal, Board of Survey and.....	235, 238
Appropriations for Canal construction.....	40, 41, 42, 262, 277
Arango, R. M.....	173
Arias, Ricardo.....	319, 417, 419, 421
Arrests, number of.....	380
Assistant supervisors.....	149
Auditing, method of.....	284
Awards of bids for supplies.....	233
Bachelors, dormitories for.....	101
Baggage cars.....	475
Band.....	94
Bank spreaders, number of.....	18, 204, 212, 214
Barbour, J. H.....	134
Barges, number of.....	212, 214, 237
Baseball.....	94
Bas Obispo Residency.....	468
Baxter, J. K.....	378, 417
Bierd, Mr.....	153
Beeks, Miss Gertrude.....	105, 406
Belding, W. M.....	188, 366, 367, 452, 454, 455, 457, 458, 460, 462, 463, 464, 465, 466
Beri-beri.....	309
Bids for supplies, award of.....	233
Bishop, J. B.....	4, 104, 124
Blackburn, Hon. Jo. C. S.....	4, 124
367, 387, 388, 390, 415, 416, 417, 419, 425, 431, 439, 440	
Black powder.....	146
Blacksmiths, compensation of.....	182
Blasting material.....	237
Blasting powder.....	235
Board of Survey and Appraisal.....	235, 238
Boiler makers, compensation of.....	183
petition of.....	184
Bolich, D. W.....	141, 460

	Page.
Box cars.....	475
Brass, scrap, from the French.....	220, 235
Bread.....	236
Brick.....	237
Bubonic plague.....	311
Buildings acquired from the French.....	300, 451, 454, 457
Buildings constructed, character and cost of.....	186
repaired, and destroyed.....	178
Building Construction Division. <i>See</i> Municipal Engineering, Motive Power and Machinery, and Building Construction, Department of.	
Buildings for Sanitary Department.....	357
Buildings, new quarters, estimated cost of.....	302, 303
Buildings, number and cost.....	98
Buildings, repairs to.....	196, 201
Burson, W. B.....	224
Burt, A. M.....	453, 461
Caboose cars.....	476
Campen, George L.....	370, 415
Canal Record.....	18, 473
Canal Zone Government. <i>See</i> Civil Administration, Department of.	
Canfield, Herman.....	465
Cars, baggage.....	475
box.....	475
caboose.....	476
French.....	159, 203, 219
number of.....	18, 202, 203, 212, 214
passenger.....	474
refrigerator.....	474
Carter, Surgeon Henry R.....	353
Cement.....	169, 236
Chagres River Division.....	5, 7, 8
Chairman and Chief Engineer, equipment in residence of.....	125
Chairman, Isthmian Canal Commission. <i>See</i> Chief Engineer.	
Chief Clerk, Department of Disbursements.....	241
Chief clerks.....	112, 134
Chief Engineer, Isthmian Canal Commission.....	3, 124, 140, 163, 170, 171, 261, 262, 265, 304, 327, 352, 353, 357, 409, 411, 417, 419, 421, 445, 452, 453, 454, 457, 458, 459, 460, 461, 462, 464, 468, 477
Churches.....	93
Civil Administration, Department of.....	367
Division of Posts, Customs and Revenues.....	386
estimates of.....	393, 439
expenditures of.....	439 et seq.
Fire Department.....	374, 385, 425, 427, 435, 440
Judiciary.....	384, 436, 440
Legal Department.....	383
material and supplies for.....	381, 422
organization and personnel of.....	368
paving.....	415, 417, 419, 421, 443
Police Department.....	379, 425, 440
public works under.....	415, 424, 440
revenues of.....	436, 437, 438, 440
scope of.....	368
sewers.....	415, 417, 419, 421
stationery, printing and office supplies.....	401
traveling and contingent expenses.....	402, 423
Water Department.....	415, 416, 421, 440, 443
Clerical force, reduction of.....	108
salaries of.....	115
Clubhouses, Y. M. C. A.....	93, 95
secretaries of.....	105
Coaches, railroad.....	474
Coal, distribution of.....	483
Coal-handling plant.....	476
Coal lighters.....	476

	Page.
Colon, city of, former condition of streets in.....	308
paving in.....	415, 417, 419, 421, 443, 447, 455, 457
sewers in.....	415, 417, 419, 421, 447, 455, 457
water system in.....	317, 416, 417, 419, 421, 440, 443, 447, 455, 457
Colon Dredging Division.....	4, 16
Hospital.....	457, 458, 459, 474
Residency.....	468
Commissary price list.....	58
Commissioners, compensation of.....	4
Comparative statement of salaries and wages paid and estimated.....	121
Comparison of salaries paid on Isthmus and in the States.....	120, 180 et seq.
Compensation of boiler makers.....	183
of blacksmiths.....	182
of Commissioners.....	4
of coppersmiths.....	185
of firemen.....	425
of machinists.....	182
of mechanics.....	176, 181 et seq.
of molders.....	182
of pattern makers.....	177, 182
of policemen.....	425
Concrete and cement.....	160
Condition of personnel.....	51
Construction and Engineering, Department of.....	3
Division of Material and Supplies.....	204, 221, 225, 471
employees in.....	49, 50, 51
organization of.....	4
Construction of general office buildings.....	110
Construction plant.....	18, 203, 212, 214
Consulting Board, estimates of.....	43, 45 et seq.
Contract employment.....	52, 53
Contract system, discussion of work by.....	135
Cooke, Tom M.....	319, 369, 383, 384, 386
Coppersmiths, compensation of.....	185
Corrals.....	223, 224, 471
supplies for.....	237
Cost-keeping account.....	250, 261
Cost-keeping system.....	244, 250, 261
covering engineering work.....	174, 261
Cost of commissary supplies.....	58
of disbursements.....	268
of excavation.....	21
by steam shovels.....	144
for locks and dams.....	174
of family quarters.....	191
of meals.....	295, 296
per patient in the hospitals.....	360
of water system, paving, and sewerage.....	421
Cottages.....	191
Courts, James C.....	3, 112, 141
Crabtree, Capt. George H.....	353
Cranes, number of.....	203, 212, 214
Cucuracha Slide.....	14, 40
Culebra Cut, notes of reference on.....	163
Culebra Division.....	5, 9, 15, 22, 114
Culebra, the.....	162, 163
Culex mosquito.....	315
Cummings, E. C.....	184
Customs, Division of.....	386, 406
Davis, Gen. George W.....	368
Deaths from yellow fever.....	311 et seq.
Decree by Governor of Canal Zone.....	443
by President of Republic of Panama.....	441, 443
Definitions of expenditures accounts.....	269
Delaware, the.....	10

	Page.
Demolition and removal of old French buildings.....	454
Demopolis, Ala.....	172
De Obaldia, Jose Domingo.....	443
Department of Civil Administration. <i>See</i> Civil Administration, Department of.	
Department of Construction and Engineering. <i>See</i> Construction and Engineering, Department of.	
Department of Disbursements. <i>See</i> Disbursements, Department of.	
Department of Excavation and Dredging. <i>See</i> Excavation and Dredging, Department of.	
Department of Labor, Quarters, and Subsistence. <i>See</i> Labor, Quarters, and Subsistence, Department of.	
Department of Lock and Dam Construction.....	166
personnel of.....	170
Department of Municipal Engineering, Motive Power and Machinery, and Building construction. <i>See</i> Municipal Engineering, Motive Power and Machinery, and Building Construction, Department of.	
Department of Sanitation.....	303
Buildings for.....	357
Clerical force.....	354
Emergency labor force.....	354
Extra force for leaves and sickness.....	362
Laboratory.....	354
Material and supplies.....	356
Repairs to buildings of.....	359
Stationery for.....	359
De Putron, B.....	103, 134
Derailments.....	22, 28, 34
Difficulty of retaining mechanics.....	186
Disbursements, cost of.....	268
Disbursements, Department of.....	241
attempted frauds.....	242
employees in.....	245, 268
methods used in.....	242, 269
Disbursing officer.....	256, 257
acting.....	241
Diseases formerly prevalent on the Isthmus.....	309
now prevalent on the Isthmus.....	310
District tax collectors.....	412
Division of Building Construction, duties of.....	189
expenditures of.....	198, 200
Division office buildings.....	195
Division of Material and Supplies, Department of Construction and Engineering.....	204, 471
corrals.....	471
forage.....	471
organization and operation of.....	225 et seq.
personnel of, and their compensation.....	205, 210, 221, 224
printing office.....	472
stationery and supplies.....	472
vehicles, etc.....	472
Division of Municipal Engineering.....	446
Dock at Cristobal.....	476
Dormitories for bachelors.....	191
Doty, F. W.....	134
Dredges and machinery, French.....	157, 159
Dredges, excavation by.....	16
number of.....	212, 214, 237
Drill runners.....	148
Drills, number of.....	212, 213, 214
Dumping grounds, Culebra Division, capacity of.....	114
Dumps, daily reports of.....	27, 28, 33, 39
Dyer, Max.....	134
Dynamite.....	146, 235
Earnings of Panama Railroad Company.....	477
of Panama Railroad Steamship Line.....	477



TYPE-5-REVISED
2-STORY
BACHELOR-QUARTERS

6/10/07

	Page.
our-family houses, construction of	111
ranchises	392, 437, 438
ranked mail matter	404
rench, buildings acquired from the	300, 451, 451
rench dredges	157, 159, 219
locomotives	159, 203, 219
machinery	157, 203, 204, 219, 235, 239
material, use of	218 et seq., 235, 239
rench, property acquired from the	157, 159, 203, 204, 218, 235, 239, 300, 301
uel, lights, and water	4, 125, 294, 303
uel, purchase of	160
uel, use of oil as	163
urniture	236, 293, 302
ailard, Maj. D. D.	4, 5, 8, 124, 140
amboa bridge	445
atun Dam	4, 5, 167, 175, 445
character of site	5, 6, 167
estimated expenditure on	168
stability of	167
atun locks	175, 445
ay, M. C.	241, 247, 265
eneral foremen	142, 149
eneral Manager, Panama Railroad	160, 474
eneral office buildings, construction of	110
eneral Purchasing Officer	419
lant powder	235
oethals, Lieut. Col. George W.	3,
	124, 140, 163, 170, 171, 261, 262, 265, 304, 327, 352, 353, 357,
	409, 411, 417, 419, 421, 445, 457, 458, 459, 460, 464, 468, 477
old employees, number of	18
orgas, Col. W. C.	4, 124, 308, 368, 457
orgona shops	195
overnment of Canal Zone. <i>See</i> Civil Administration, Department of.	
overnor of Canal Zone, decree by	443
runsky, C. E., motion by	303
uardia, Santiago de la	399, 400
uayaquil, Ecuador, yellow fever in	313
uerrero, Dr. Manuel Amador	396, 399, 400
arding, Chester	175
askins, D. C.	135
health conditions on the Isthmus	308, 309
odges, H. F.	419, 434
olcombe, J. G.	449, 460
olidays	95
ospital at Ancon, enlargement of	358
at Colon	457, 474
at Porto Bello	358
ospital buildings, repairs to	359
ospitals, cost per patient in	360
discussion concerning consolidation of	322 et seq.
estimates for construction and repair of	364
furniture for	236
on Canal Zone	317 et seq., 360, 361
otels, rates at	206
repairs to	301
ouses, new	193
ydrographic records	172, 173
stations	172
re	294
crease of excavating force	156
nfection, yellow fever	316
asane patients, Panamanian, treated in American hospitals	318
nspection of food supplies	209
of material and supplies	209, 227
of sanitary condition of buildings	299
sanitary, in Panama	314

	Pa
Inspectors of plumbing and water.....	370, 4
traveling expenses of.....	1
Internal revenue.....	4
Intoxicating liquors, regulations respecting sale of.....	4
Inventory and property returns.....	2
Iron, purchased.....	2
scrap, acquired from the French.....	220, 2
Irregularities detected.....	285, 1
Isthmian Canal Commission—	
Chairman of. <i>See</i> Chief Engineer.	
compensation of.....	
equipment of.....	18, 208, 212, 2
material purchased by.....	2
number of employees of.....	2
office of.....	51, 1
personnel of.....	3
Jacobsen, B. L.....	1
Jadwin, Edgar.....	2
Jamaica negroes.....	2
Janitor service.....	125, 2
Jones, M. K.....	
Judges.....	384, 436, 4
Judiciary, the.....	384, 436, 4
Kennedy, S. J.....	1
Kiel Canal.....	
Klauber, S. C.....	
La Boca Dredging Division.....	5, 16, 2
Laboratory, Department of Sanitation.....	2
Laborers employed, number of.....	
European.....	4
Panamanian.....	4
quarters of.....	
transportation and recruiting of.....	4
Labor, skilled, supply of.....	
Unskilled, supply of.....	100, 2
wages of.....	2
Labor, Quarters, and Subsistence, Department of.....	288, 4
Allotment of quarters.....	291, 292, 297, 2
Bread.....	1
Buildings acquired from the French.....	1
Fuel, lights, and water.....	
Furniture.....	
Hotels, repairs to.....	4
Ice and cold storage.....	
Janitor service.....	
Labor supply.....	289, 2
Laundry service.....	
Policy as to family quarters.....	
Quarters, construction of.....	297, 306, 2
repairs to.....	
Rates of subsistence.....	
Sanitary inspection of buildings.....	
Scope and functions of.....	
Transportation and recruiting.....	4
La Crossaid, Dr.....	
Land owned and leased by the Panama Railroad.....	
Lane, Rufus A.....	
Launches.....	214, 2
Laundry.....	
at Ancon.....	
Leases on land.....	390, 394, 4
Leave, sick and vacation.....	
Legal Department.....	
Le May, E. A.....	
Lepers treated in American hospitals.....	318, 4
Leys, Surgeon James F.....	353, 4

	Page
enses.....	388, 392, 405, 407, 408
gerwood unloaders, number of.....	18, 204, 212, 214
liters, coal.....	476
ion, yellow fever in.....	314
ce, I. F.....	445
nors, intoxicating, regulations respecting sale of.....	400
t of material due.....	215
f material received.....	212
e stock, quantity of.....	224, 238
al transportation, Panama Railroad.....	107
k and Dam Construction, Department of.....	166
ks and dams, cost of.....	174
ks.....	10
ost of enlargement of.....	11
ngth of.....	13
omotives, number of.....	18, 202, 203, 212, 214
rench.....	159, 203, 219
gevity pay.....	113, 114
s owned and leased by the Panama Railroad.....	484
nber, quantity received.....	211
itana, the.....	12
ter, Capt. Theo. C.....	353
Farlane, J. A.....	239
achinery and dredges, French.....	157, 159, 203, 219
achinery. <i>See</i> Municipal Engineering, Motive Power and Machinery, and Building Construction, Department of.	
chinists, compensation of.....	182
gon, Charles E.....	292, 445
guire, J. M.....	465
let, Mr. (British Minister).....	312, 332
nagerial positions.....	115
nine Barracks.....	100
nine Department.....	162
nine Hospital Service, details from.....	352, 353
cket houses.....	390
ster Builder.....	366, 367, 452, 454, 455, 458, 460, 461, 462, 463, 464, 465, 466
terial and equipment acquired from the French.....	157, 159, 203, 204, 218, 235, 239
terial and Supplies, Division of.....	204, 471
rganization and operation of.....	225 et seq.
ersonnel, and their compensation.....	205, 210, 221, 224
terial, building.....	202
terial, due, list of.....	215
urchase of.....	108, 236
received, list of.....	212
Arthur Brothers Co.....	132
ormack, D. W.....	134
Culloch, Maj. C. C.....	353, 364, 367
Cullough, C. C., jr.....	458
Farland, E. C.....	134
Mahon, John J.....	434
Pherson, C. L.....	134
als, cost of.....	295, 296
chanics, compensation of.....	176, 181, 182
fficulty of retaining.....	186
lical organization.....	330
lical storehouses.....	349, 457, 458, 459
onsolidation of, with general storehouse.....	473
eteorological work.....	172
afiores, tunnel at.....	446
cellaneous receipts payable to the U. S. Treasury.....	267, 283
us vivendi with Republic of Panama.....	319, 396
lders, compensation of.....	182
ney-order sales.....	391, 413, 437, 438
rtality from yellow fever.....	311 et seq.

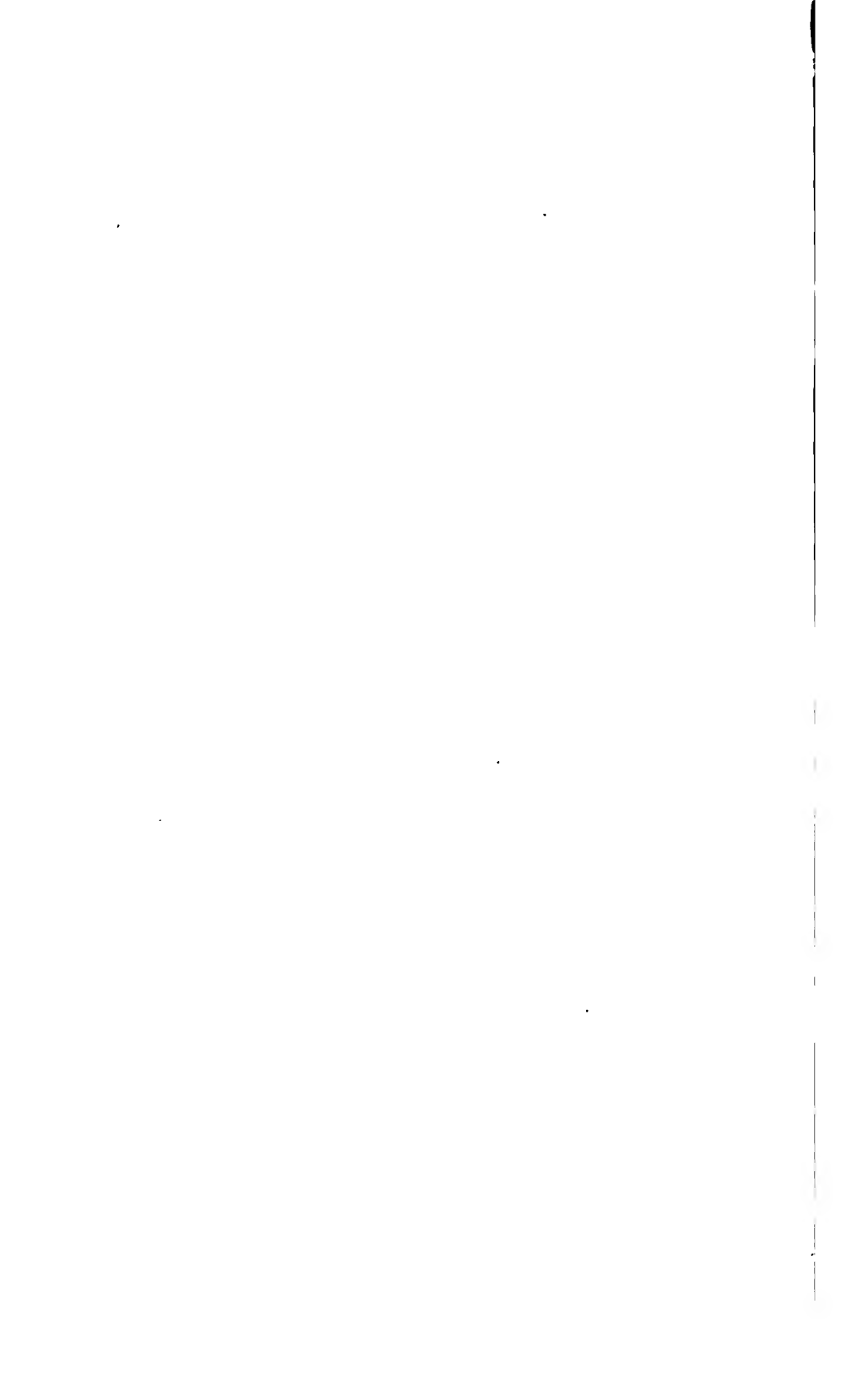
	Page
Mortality records on the Isthmus under American control.....	332, 333, 334, 3
under French régime.....	312, 332, 335, 340, 3
Mosquitoes.....	313, 314, 315, 3
Motive Power and Machinery. <i>See</i> Municipal Engineering, Motive Power and Machinery, and Building Construction, Department of.	
Mount Hope Storehouse, fire at.....	208, 426, 429, 4
Municipal Engineering, Motive Power and Machinery, and Building Con- struction, Department of.....	176, 4
Brick, lumber and cement.....	4
Condition of work.....	4
Estimates.....	4
Expenditures.....	1
Fuel and incidentals.....	450, 4
Municipal engineering.....	4
Paving.....	415, 417, 419, 421, 443, 4
Personnel.....	176, 447, 4
Quarters, applications for repair of.....	451 et seq., 457, 461 et seq.
Rates of compensation.....	1
Reduction of force.....	4
Repairs to buildings.....	451, 452, 4
Roads and trails.....	4
Sewers.....	415, 417, 419, 421, 4
Unskilled labor.....	4
Water works.....	416, 417, 419, 421, 440, 441, 443, 4
Murray, Capt. Alex.....	3
New houses.....	1
New office buildings.....	190, 1
New storehouses.....	1
Noble, Capt. Robert E.....	3
Non-immunes.....	311, 3
Notes of reference, Culebra Cut.....	1
Number of men employed.....	18, 332, 3
Nurses.....	331, 362, 3
Obaldia, Jose Domingo de.....	4
Office buildings, general, construction of.....	1
new.....	190, 1
Oils purchased.....	2
Oil, uses of, as fuel.....	1
Oliver, Robert Shaw.....	4
Oliver, William J.....	132, 1
Operating expenses of Panama Railroad and Steamship Line.....	4
O'Rourke Engineering Construction Co.....	1
Output of steam shovels.....	15, 16, 22 et seq.
Painting of buildings.....	1
Panama, agreement with Republic of.....	318, 319, 3
President of Republic of.....	396, 399, 441, 4
Panama, fire protection in.....	3
former condition of streets in.....	3
paving in.....	373, 415, 417, 419, 421, 443, 447, 455, 456, 4
sewers in.....	415, 417, 419, 421, 447, 455, 456, 4
water system in.....	371, 416, 417, 419, 421, 440, 441, 447, 455, 456, 4
Panamanians treated in American hospitals.....	318, 319, 320, 328, 3
Panama Railroad, advances to.....	44,
equipment of.....	202, 212, 214, 474, 4
extra train service on.....	1
General Manager of.....	160, 4
local transportation on.....	1
number of employees of.....	2
operation of.....	4
relocation of.....	4
Panama Railroad Steamship Line, operation of.....	4
Panama Residency.....	4
Park, LeRoy.....	2
Passengers carried by Panama Railroad and Steamship Line.....	4
Patients treated in hospitals, number of.....	317, 8
cost of.....	360, 8
Pattern makers, compensation of.....	177, 1

	Page.
aving in Colon and Panama	373, 415, 417, 419, 421, 443, 447, 455, 456, 457
ay-roll system	245
edro Miguel Locks	5, 20
ermits	437
erquisites of American Employees	55, 93, 154, 180, 183, 206
erry, Dr. James C.	352, 353
ersonnel, condition of	51
etition of boiler makers	184
hillips, Maj. John L.	353
hysicians, force of	330, 362, 363
ierce, Dr. C. C.	353
ile drivers, number of	18, 203, 212, 214
iles received	236
ant, construction	18, 203, 212, 214
lows, unloading, number of	18, 204, 212, 214
lumbing	453
lumbing and water inspectors	370, 416, 453
neumonia, among negroes	310
olice Department	379
olicemen, compensation of	425
olicy as to allotment of married quarters	302, 307
opulation of Canal Zone	346
orto Bello Hospital	358
quarries	5
ostage stamps purchased from Panama	386
ostal receipts	389, 390, 391, 394, 404, 436, 437, 438
ostal service	396, 401, 404, 436
ostmasters and post-office clerks	404, 412
osts, Division of	386, 412
owder	235
black	146
owder men	145, 147
resident of Republic of Panama	396, 399, 441, 443
decree by	441, 443
ressman	106
rice list, Commissary	58
rinting	234, 472
rinting office	472
privileges and advantages to American employees	55, 93, 154, 180, 183, 206
roperty accounts	241, 248
roperty acquired from the French	218, 235, 239, 300
roperty returns	230
ublic Health Service	352, 353
reports of	314, 315
ublic improvements on the Zone	394, 395, 447
ublic works, Superintendent of	415, 417
urchase of explosives	161
of fuel	160
of material, supplies and equipment	108
of tools	159
urchases on the Isthmus	232
urchasing Officer, General	419
uarantine Service	313, 315, 352
uarters	190
allotment of	291, 292, 297, 304
applications for	297, 302, 304
applications for repair of	451 et seq., 461 et seq.
bachelor	307
construction of	297, 305, 306, 307
family	52, 191, 302, 304
for Panama Railroad employees	476
laborers'	194
letter concerning supply of	304
married, policy as to	302
new, estimate cost of	302, 306, 307
repairs to	300
See Labor, Quarters and Subsistence, Department of.	

Quintero, Manuel	Pa
Railroad. <i>See</i> Panama Railroad.	4
Railway postal clerks	4
Rainfall, Nov. 6, 1907	
Nov. 7, 1907	
Nov. 8, 1907	
Rates at hotels, messes, and kitchens	295, 2
Receipts, miscellaneous, payable to the U. S. Treasury	267, 2
Receipts of Panama Railroad and Steamship Line	481, 4
Reduction of clerical force	108, 1
of salaries, proposition of	96, 1
Reed, H. D.	3
Refrigerator cars	4
Registration of mail	404, 4
Regulations respecting the sale of intoxicating liquors	4
Relocation of Panama Railroad	4
Rentals from land and buildings	390, 394, 408, 4
Repairs to buildings	196, 4
to floating equipment	1
to hospital buildings	3
to hotels	3
to quarters	3
to quarters, applications for	451 et seq., 461 et s
in Department of Excavation and Dredging	1
Repatriation	4
Reports of dumps	27, 28, 33,
of steam shovels	22 et s
Requisitions, method of making and filling	204, 207, 4
Residencies	467, 4
Revenues, Division of	386, 407, 4
Revenues of the Canal Zone	265, 283, 388, 436, 437, 4
disposition of	
miscellaneous	267, 4
sources of	388, 4
Rio Grande Reservoir	
Rock crushers, number of	213, 4
Rogers, R. R.	48, 109, 111, 112, 319, 381, 383, 384, 390, 4
Rolling stock	
Roofing, corrugated iron	
Rourke, Louis K.	141, 4
Rousseau, H. H.	4, 5, 112, 124, 176, 370, 415, 446, 464, 4
Safeguards against yellow fever	
Salaries and wages paid and estimated	
Salaries, comparison of, paid on Isthmus and in the States	
Department of Construction and Engineering	
of clerical force	
of Commissioners	4, 4
of postmasters and post-office clerks	404, 4
office of Chairman and Chief Engineer	51, 4
other than skilled and unskilled labor	
paid by the Departments of the Government	
paid on Isthmus and in the States, comparison of	129, 180 et
proposition to reduce	96, 4
Sanitary inspection	
Sanitary records on the Isthmus under American control	309, 332, 333, 334, 4
under French régime	308, 312, 332, 335, 340, 4
Sanitation Department. <i>See</i> Department of Sanitation.	
Santo Thomas Hospital, patients treated in	318 et seq., 328, 4
Schools	98, 394, 395, 4
Scofield, John C.	112, 4
Scrap iron shipped to the United States	220, 4
Scrap, sale and use of	218, 220, 230, 4
Screening, wire	
Secretary of War	135, 318, 319, 396, 399, 400, 411, 4
Sewers in Colon and Panama	415, 417, 419, 421, 441, 447, 455, 456, 4
Shannon, E. B.	463, 464, 4

	Page.
Shook, Dr. Trainer M.....	353
Shops at Gorgona and Empire.....	195
Shops and subsistence, Marine Department.....	162
Shower baths.....	453
Sibert, Maj. William L.....	4, 5, 124, 166
Sick leave and vacation leave.....	217
Sick rate on the Isthmus.....	309
Skilled labor, supply of.....	289
Slide at Cucuracha.....	14, 40
Slifer, Hiram G.....	160, 163, 474
Smith, Jackson.....	4, 18, 124, 195, 196, 288, 452, 459, 460, 462, 463, 464, 468
Spanish laborers.....	290
Spoil from excavation, transportation of.....	26, 27, 31, 37, 38
Spreaders, number of.....	18, 204, 212, 214
Stagg, John.....	434
Stamps, postage, purchased from Panama.....	396
sale of.....	437, 438
Stationery and printing.....	234, 472
Stationery and Supplies, Division of Material and Supplies.....	472
Statement of buildings constructed, repaired, and destroyed.....	178
of explosives received at Cristobal.....	146
of explosives purchased.....	235
of material purchased.....	236
of salaries and wages.....	121
Steamships of Panama Railroad Company.....	477
Steamship transportation.....	469
Steam-shovel men.....	143
difficulties with.....	113
strike of.....	155
Steam shovels, daily reports of.....	22 et seq.
number of.....	18, 19, 204, 212, 214
work of.....	15, 20, 144
Stegomyia fasciata mosquito.....	313, 314, 315, 316
Stevens, William F.....	153, 292, 452, 453, 454, 461, 462
Stock, live.....	224, 238
Storehouses for supplies.....	208, 210
location of.....	231
medical.....	349
new.....	190
Stratton, D. V.....	135
Strike of steam-shovel men.....	155
Stuntz, H. L.....	106, 234
Subordinate foremen.....	142, 149
Subsistence. See Labor, Quarters and Subsistence, Department of.	
Subsistence and shops, Marine Department.....	162
Subsistence, cost of.....	205, 296
Subsistence stores, purchase of.....	303
Superintendent of Public Works.....	415, 417
Supervisors.....	149
Supplies, Division of Material and.....	204
organization and operation of.....	225 et seq.
personnel, and their compensation.....	205, 210, 221, 224
Supplies issued and received.....	222, 223
Supplies, purchase of.....	108
Supply warehouses.....	207
Survey and Appraisal, Board of.....	235, 238
Taboga Sanitarium.....	356
Taft, Hon. William H.....	396, 399, 400
agreement with Panamanian Government by.....	318, 319, 396
letter to.....	135
Tax collectors.....	412
Taxes.....	388, 392, 405, 407, 409, 487
Telephone operators.....	106
Thompson, E. P.....	135
Time inspectors, duties of.....	285
Time-keeping and pay-roll system.....	245
Tivoli Hotel.....	296

	Page
Tobey, E. C., accounts of.....	22
Tonnage of steamships of Panama Railroad Company.....	48
Tools, purchase of.....	15
Track shifters, number of.....	18, 20
Trainmen.....	15
Transportation and recruiting.....	46
Transportation, animal.....	224, 47
facilities, lack of.....	20, 21, 22, 4
local.....	107, 233, 47
of spoil from excavation.....	26, 27, 31, 37, 3
steamship.....	46
Traveling expenses of inspectors.....	16
Treasurer of Canal Zone.....	265, 393, 39
Treatment of patients in hospitals.....	317 et seq., 328, 360, 36
Treaty between United States and Panama.....	318, 319, 39
Tubby, W. G.....	105, 204, 458, 47
accounts of.....	22
Tunnel at Miraflores.....	44
Types of houses.....	20
Typewriters, repairs of.....	23
Union Oil Company.....	163, 392, 437, 43
Unskilled labor, supply of.....	100, 29
wages of.....	29
Unloading plows, number of.....	18, 204, 212, 21
Vacation and sick leave.....	21
Varilla, Buena.....	312, 33
Vehicles, etc.....	47
animal transportation.....	223, 23
Wachusett Dam.....	29
Wages of unskilled labor.....	20
Warehouses for supplies.....	135, 318, 319, 396, 399, 400, 411, 41
War, Secretary of.....	318, 319, 39
agreement with Panamanian Government by.....	13
letter to.....	41
War, Acting Secretary of.....	370, 41
Water and plumbing inspectors.....	41
Water Commissioner.....	373, 421, 440, 441, 44
Water rates.....	37
in Colon, readjustment of.....	371, 373, 417, 419, 421, 440, 441, 44
Water system of Panama and Colon.....	17
Weather Bureau stations.....	18, 290, 46
West Indian laborers.....	1
White & Co., J. G.....	256, 25
Widening locks, cost of.....	23
Williams, Edward J.....	23
Williamson, S. B.....	454, 455, 463, 464, 46
Wire screening.....	241, 242, 26
Wood, R. E.....	18
Wood, William M.....	15
Wright, P. O., Jr.....	313, 31
Yardmasters.....	311 et seq
Yellow fever, causes producing.....	93, 9
Yellow fever on the Isthmus.....	
Y. M. C. A. Clubhouses.....	
Zone Government. See Civil Administration, Department of.	

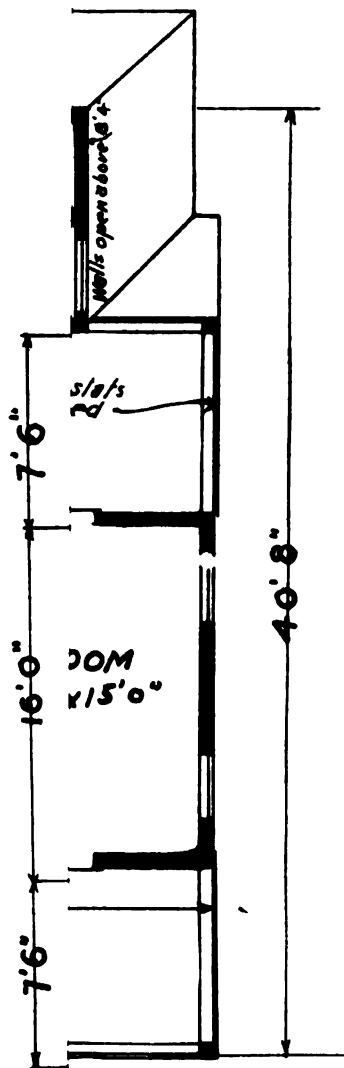




40



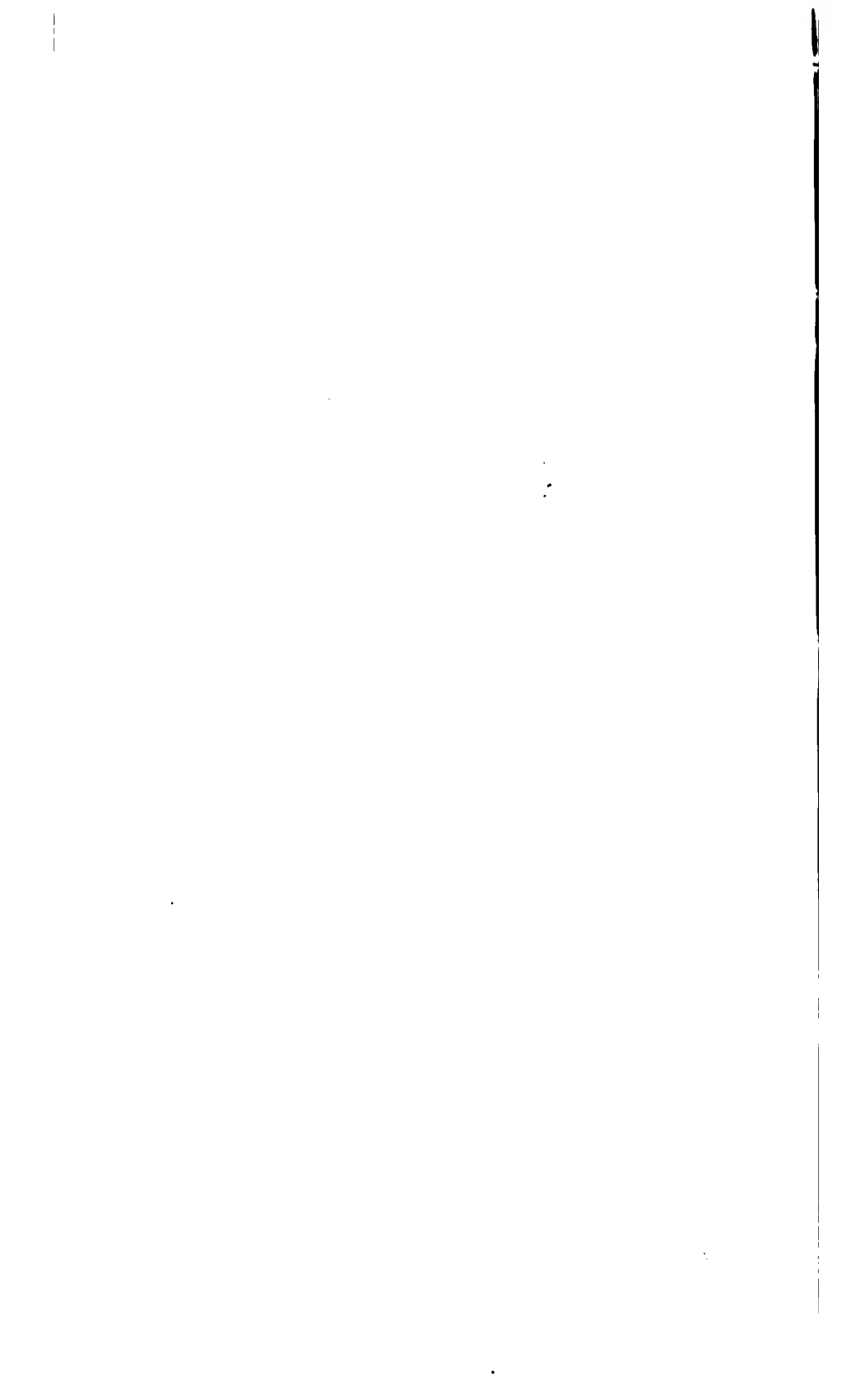
1/10/07

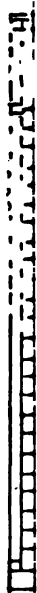


TYPE 8 A 2 STORY
1 FAMILY
HOUSE

REVISED 6/10/07

P.O. Wright Jr. Arch





SCREEN

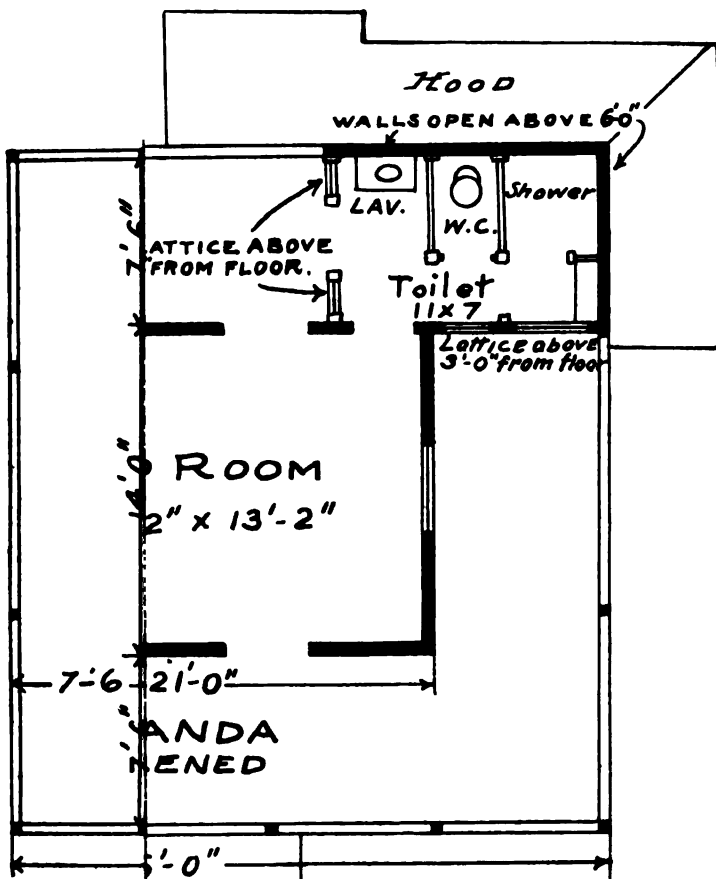
ABOVE 7'-4"

11LY

P.O. WRIGH

6/9/07

10.4



DOOR

FLOOR PLAN

TYPE 11
2 STORY 1 FAMILY
HOUSE

P.O.W.

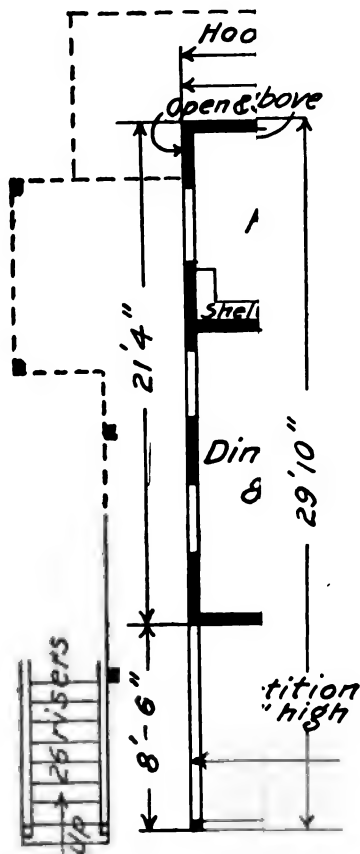
THE UNIVERSITY OF CHICAGO



43'-4"

DRY.
a
POWRIG

P.O.



Note = Th.

of 4

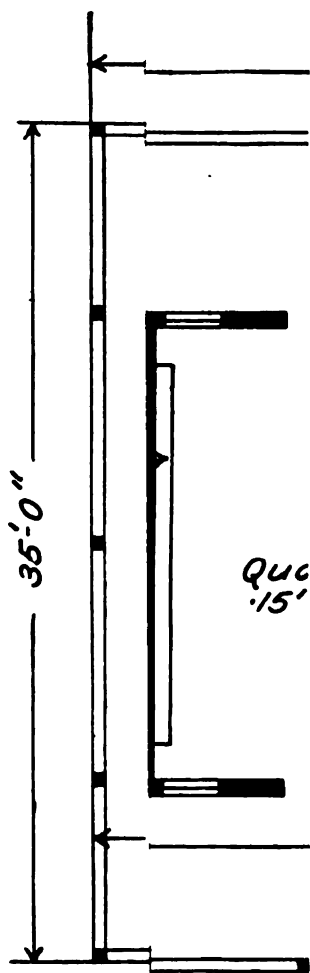
FAMILY
SE

ied 6/10/7

P.O. WRIGHT JR. ARCH

ILY

RD Wright, Jr, A



TYPE
RY BAC
UARTE

P.O.M.

36' 6"

7' 6"

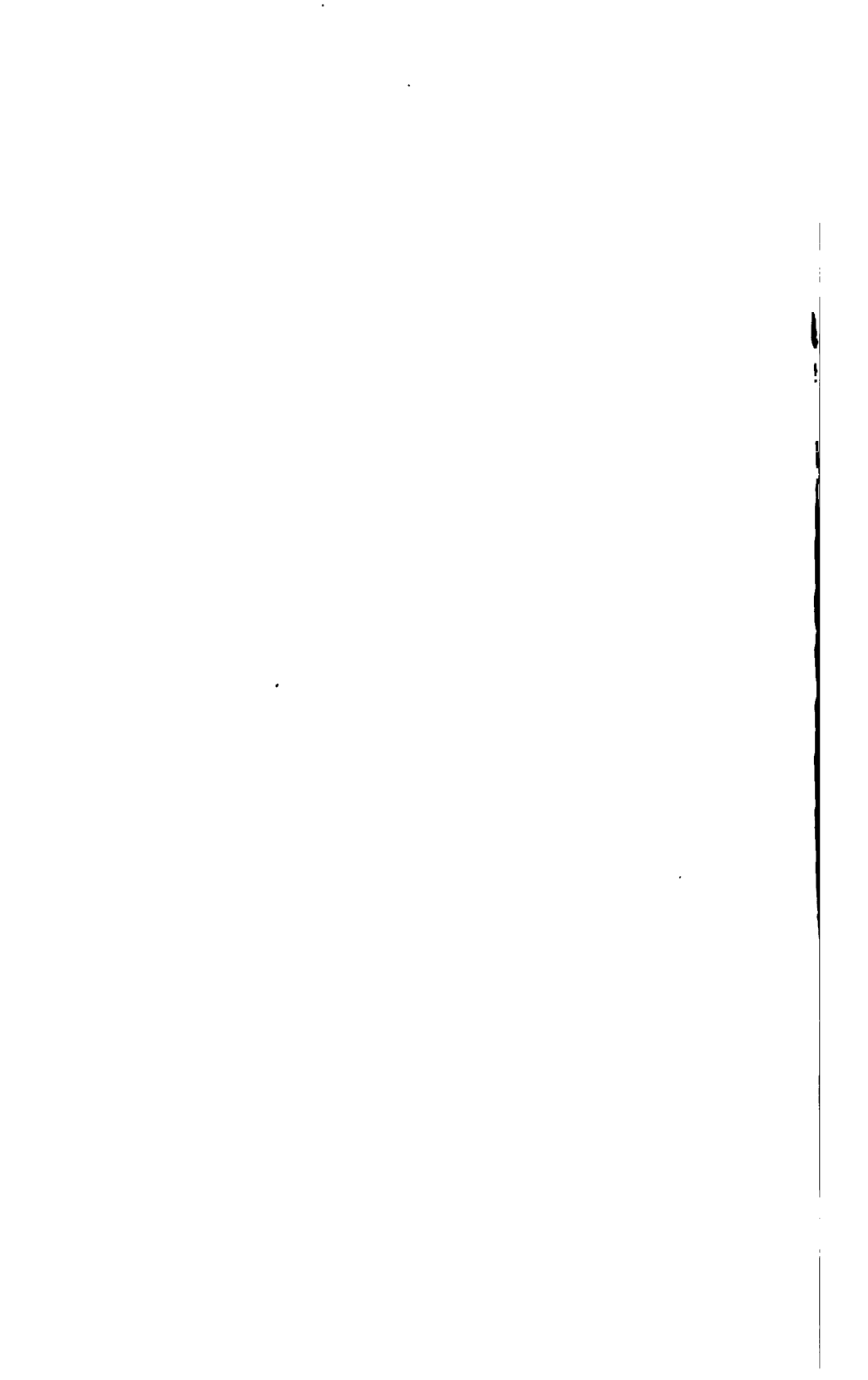
TYPE 17
ORY 1 FAMILY
HOUSE

right, Jr, Architect.

P.O. W 7

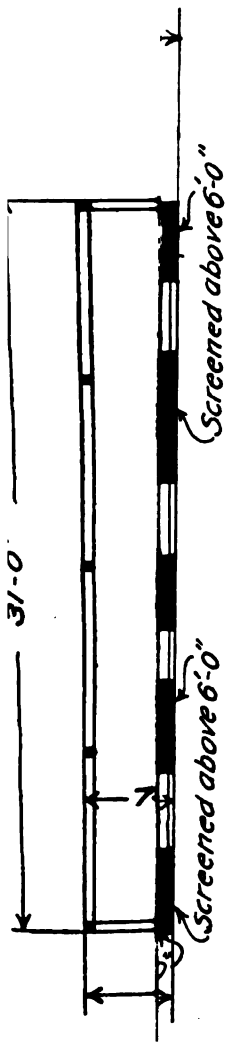


R.O. Wright, Jr.

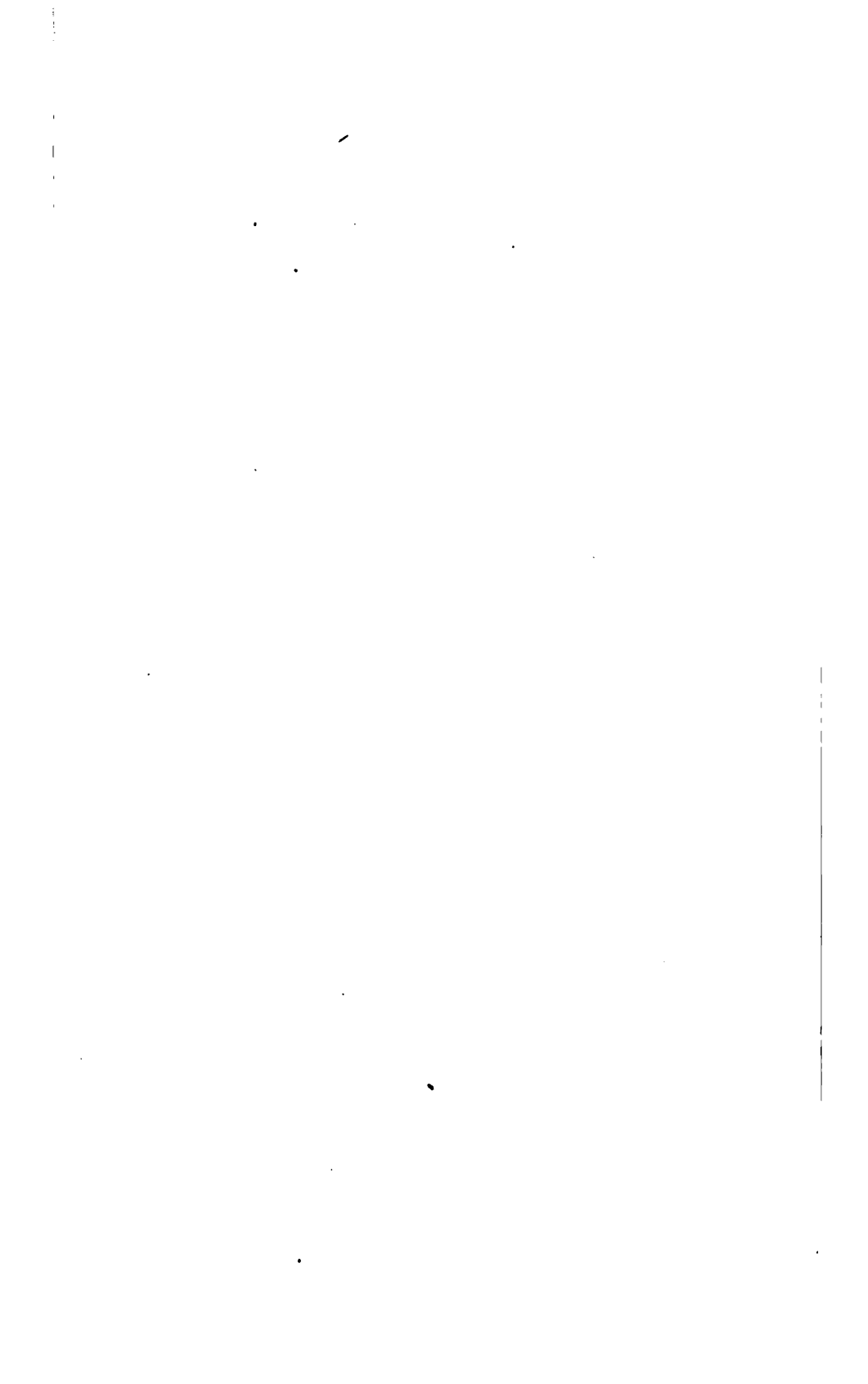


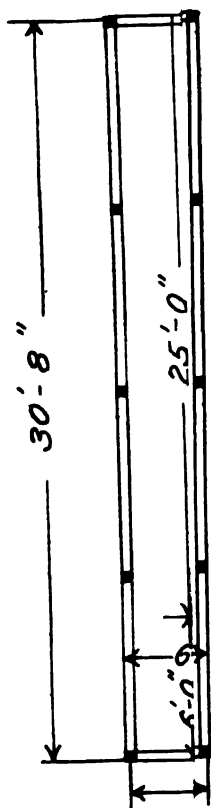
Y
6/11/55





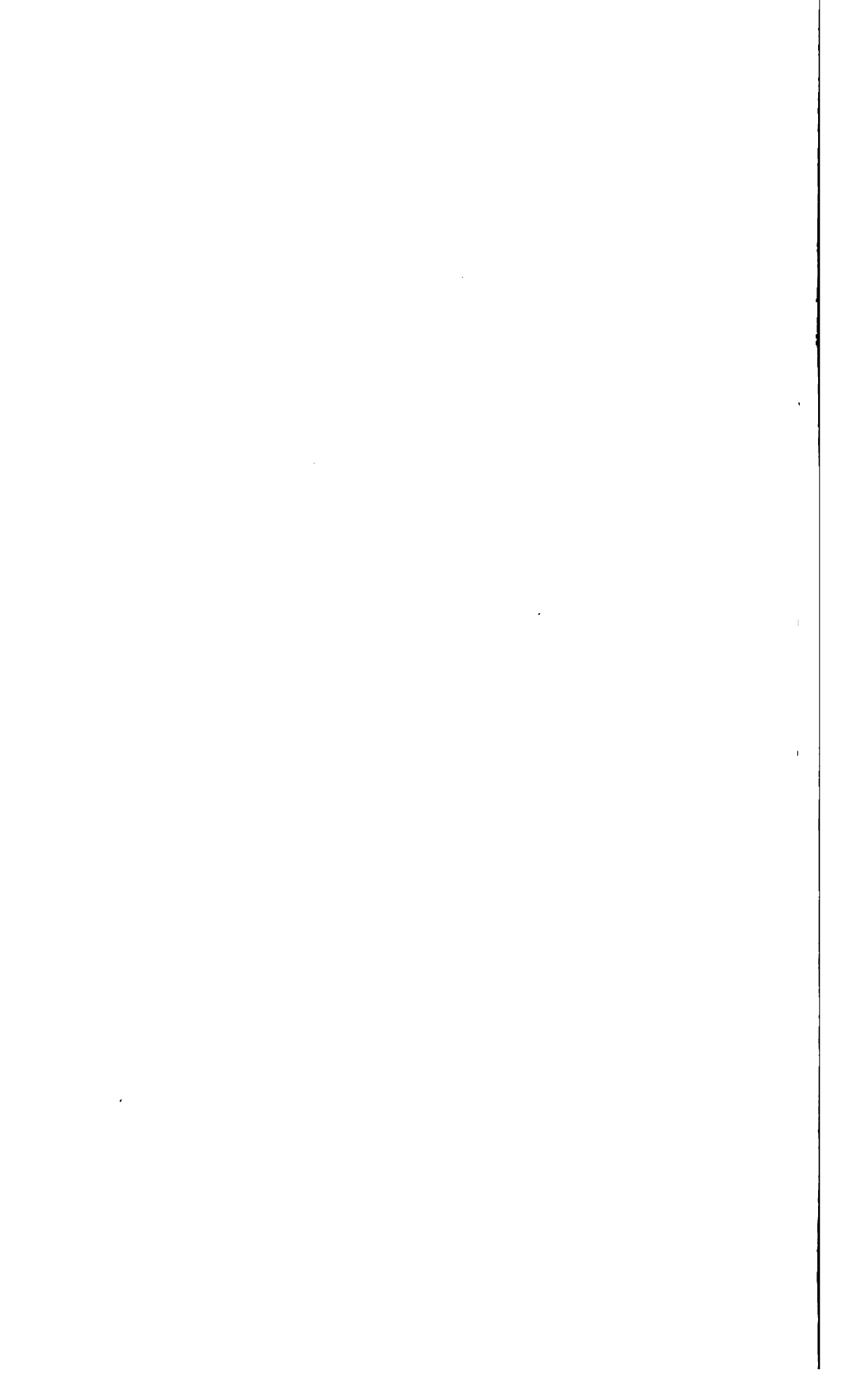
P.O. Wri





TYPE E2
YI FAMILY
DUSE

P. O. WRIGHT.



LY

P. O. W.



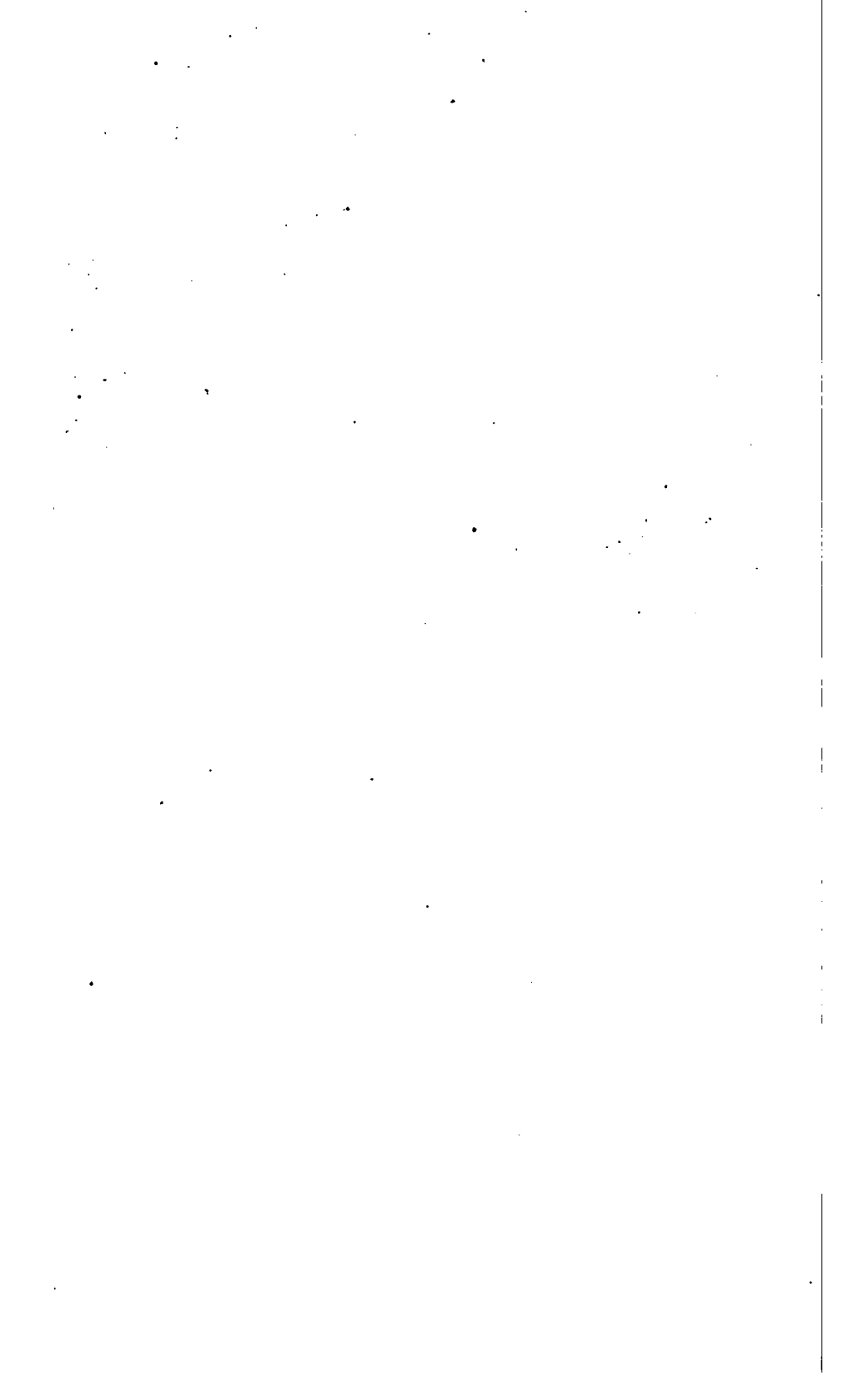
EXAMINER
OF
ACCOUNTS
H.L. Stuntz

Department of
CIVIL
ADMINISTRATION
J.C.S. Blackburn

Department of
LABOR, QUARTERS
AND SUBSISTENCE
Jackson Smith

OFFICE ENGINEER
A. B. Nichols
Division of
MAP MAKING AND
LITHOGRAPHY
C. F. Bertone

Department
EXCAVATION
AND DREDGING
Major D.D.
U.S.



SP
Director of Accounts
L. Stuntz
101 Men

Chief
Time Inspector
Q. Miller
37
Time Inspectors

La. Boc
Senior
R. B. Cliff
2 Inspector

Culebr
Senior
J. E. Bur
4 Inspector

Emplin
Senior
Q. J. Bur
4 Inspector

Clarend Fox
Chief Hazzus
B. L. Jacobson
Chief Clerk
1 Clerk

DEPA
EXCAVAT
MAJOR
CORPS G
MEMBER
W.T. HAYNE.

LA BOCA DREDGING DIVISION
DIVISION ENGINEER WGCOMBER
756 MEN
CHIEF CLERK D.V. STRATTON
CLERICAL FORCE 11 MEN

WATER SERVICE
DEPARTMENT
SUPERINTENDENT
C.E. RYBNEY.
142 MEN

SUPERINTENDENT
FLOATING EQUIPMENT.
JAMES MAC FARLANE
742 MEN

CULEBRA
GENERAL FOREMAN
W. FULLMAN

GENERAL
FOREMAN
MUSH M. KAY
346 MEN

FOREMAN
DREDGE A.
L. ROQUEBERT
103 MEN

MASTER
DIPPER DREDGE
H.M. HANCOCK
78 MEN

FOREMAN
DREDGE 14
DMETRI CORSIT
100 MEN

FOREMEN - STATION
J.L. JOHNSON
C.E. CLEMENT
F.C. WEYMAN
A.L. COONE
BAS GORSON
CULEBRA
PERRY HARRIS
GORSONA

BLACKSMITH
FOREMAN
W.J. HUMMEL
17 MEN

BOILERMAKER
FOREMAN
ONE FULLMAN
15 MEN

WAGHMIST
FOREMAN
WALTER BEHN
66 MEN

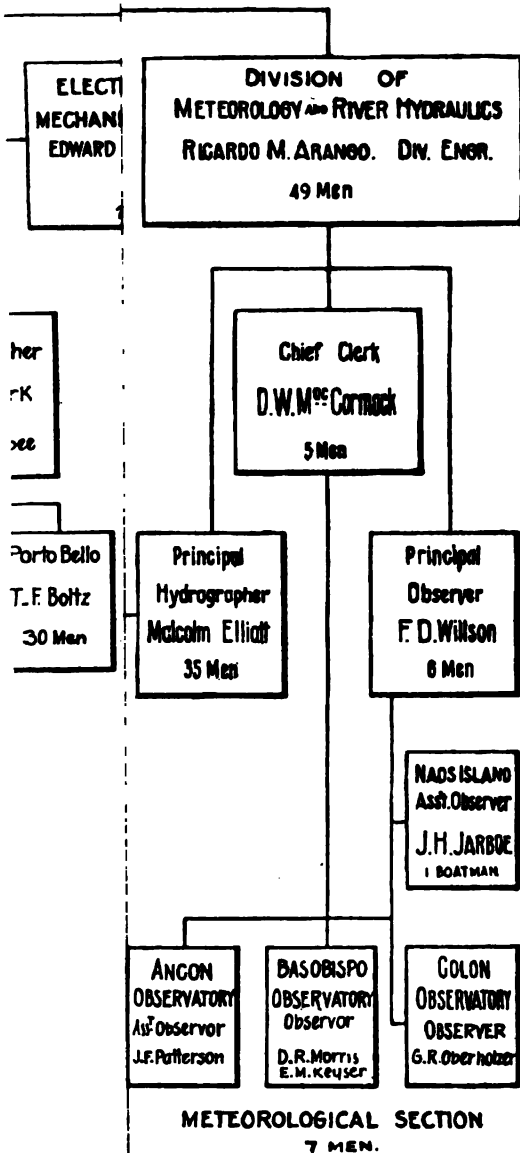
SHIP WRIGHT
FOREMAN
HENRY SMITH
70 MEN

BOILERMAKER
FOREMAN
M. HARVEY
100 MEN

DIVER
FOREMAN
P.J. BURNS
17 MEN

EL
3
MEN

DEPART
AND DAN
Major Wm
MEMBER
S, Secretar



of
KERN
CHIN
JCTK
U.S.N
SSION.

CHIN
Broo
54 PM
JN
EN.

ICE

IL

IS

IS

IS

IS

IS

IS

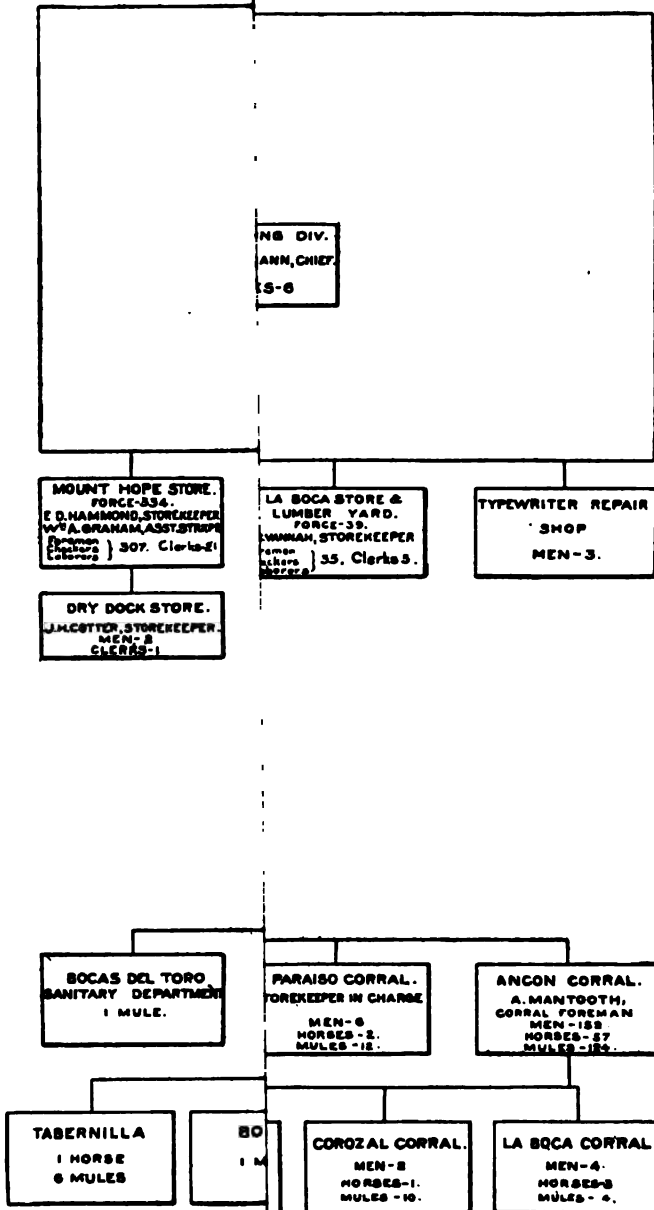
IS

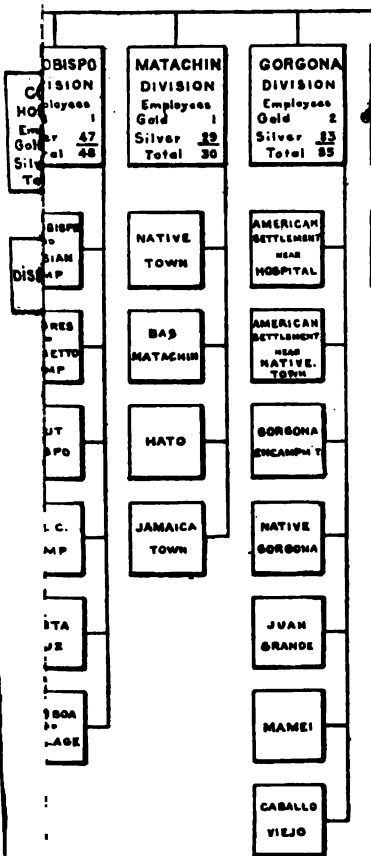
IS

IS

IS

IS





PERINTENDENT

J.A. SMITH..

2304 MEN.

ERM, W.H. BAIN

3 MEN.

**ASST.
UPERINTENDT
R.W. BERGH**

230 MEN.

**F.
OBER
NES
SEN**

**R.F.A. & P.C.
LABOCA
J.S.C. HUNT
731 MEN**

**INSPECT
REC. STEVEN
81 MEN**

**CK
CHES
TATOR**

**ASST.
INSPECT
J.C. JOHN
80 M**

**HARP
ERINTY
BOCA
CLARK
REMAN
2 MEN**

**"CAPTAIN"
BOLIVAR
LABOCA
GEO. ZARAK
2 MEN**

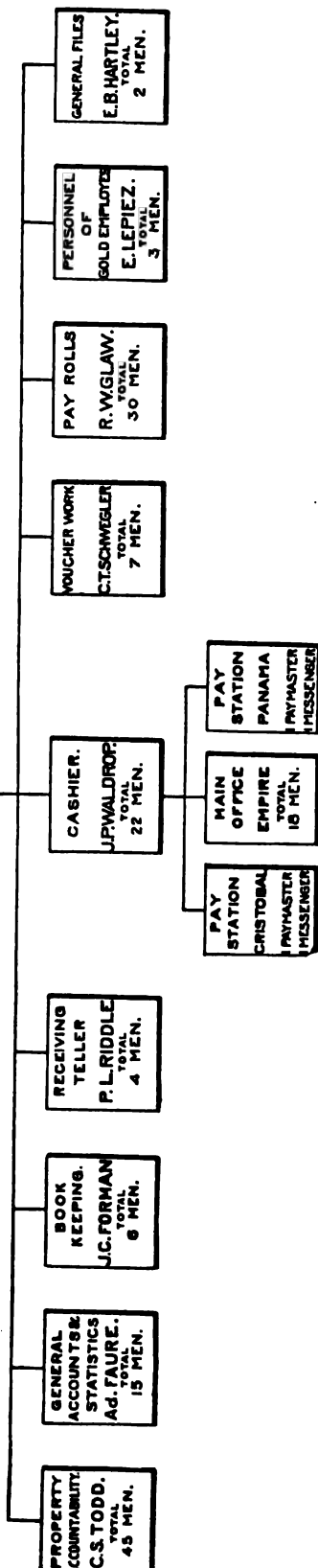
**STAIN
TING
STANTINE
OMEN**

**4 ENGINEERS
2 CRANE
FOREMAN
1 CRANE FOREMAN**

**AGENT
FACHIN
AMILTON
MAN.**

**AGENT
BAS OBISPO
R.I. PURCELL
1 MAN.**

**AGE
LAS CAS
P.L. BRA
1 M**



ENT
ANT
TOBAL
PNCON
MEN

OMS
VAND
OBAL
OMEN

RATION
ATES
MAN

TOR
OSTS
ASTERS
STAL
RKS
ENGERS
D
MAIL
NGERS

FIRE DEPAR
CHIEF
C. E. WEIDM
ASS'T CHIEF
C. F. KOERN
2-CLERK

I-STATIONAT M
ANCON
LA BOCA
CULEBRA
EMPIRE
LASCASCADAS
GORGONA
CRISTOBAL

VOLUNTEER
DEPARTMEN
ANCON
LA BOCA
COROZAL
MIRAFLORES
PEDROMIGU
PARAISO
CULEBRA
EMPIRE
LAS CASCA
GORGONA
GATUN
CRISTOBAL

RECRUITING AGENT
PORT DE FRANCE,
MARTINIQUE
W SETTOON

RECRUITING
BRIDGE 1
BARBA
W J. KAF

LA BOCA
SUPERINTENDENT
J.M. MA
628 N
CHIEF CLERK
6 ME

N
OR
G
V

LA BOCA
SUPERVISOR
C.P. ALLEN
109 MEN

COROZAL
SUPERVISOR
A.R. BENNETT
69 MEN

TEL
ITT

STEWARD
J. BALDERACCH
18 COOKS &
WAITERS

STEWARD
G.L. MOORMAN
13 COOKS &
WAITERS

11

unp

f-s

COMMISSION

OF
INSTRUCTION

Subi

SECTION

DAM

RA C.Z.

INDEX NUMBER

DAY YEAR

1540

30th 1907

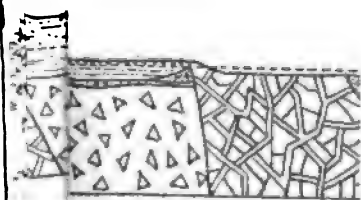
..... SHEET



Cucaracha

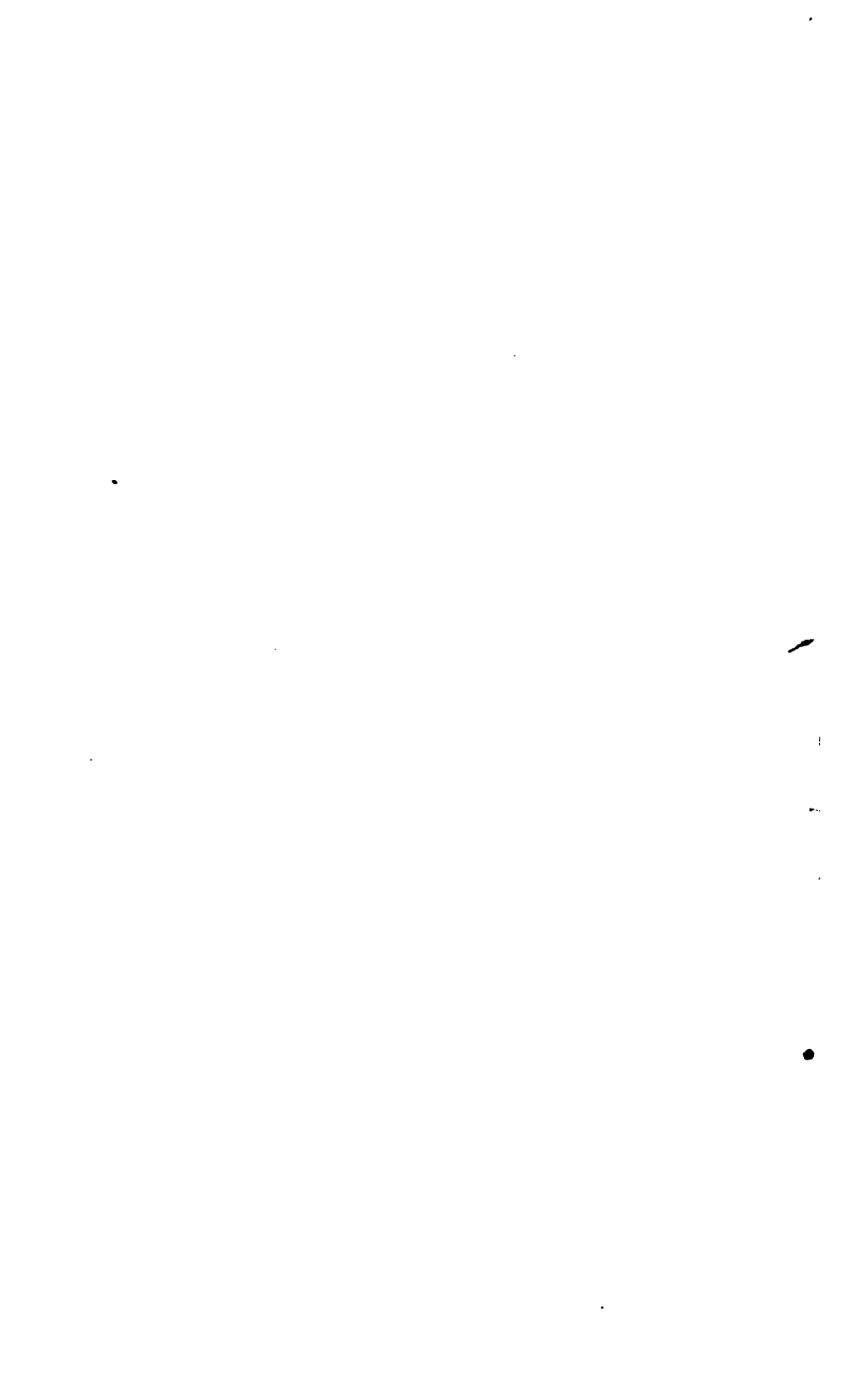
La Boca

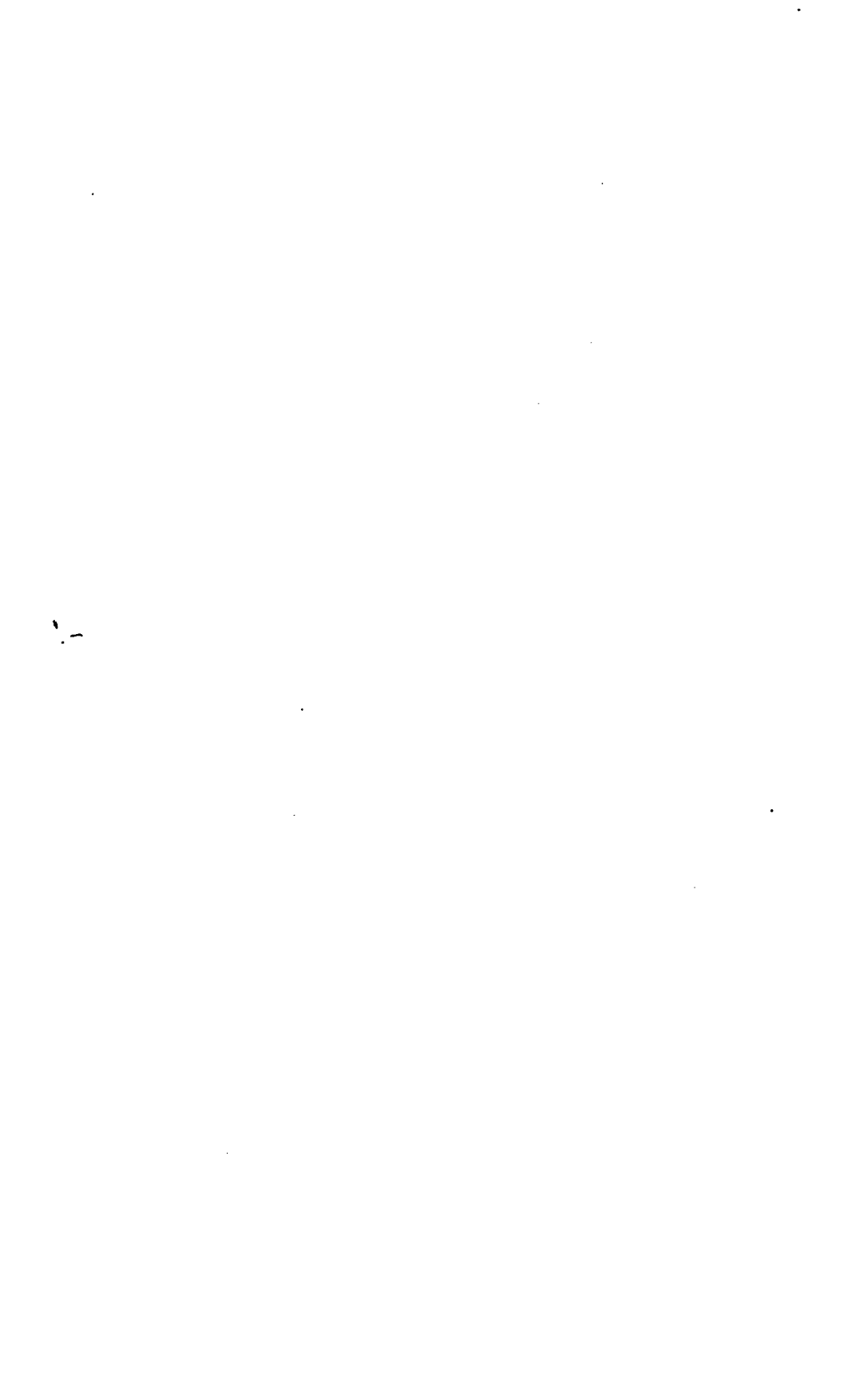
PANAMA



68

69

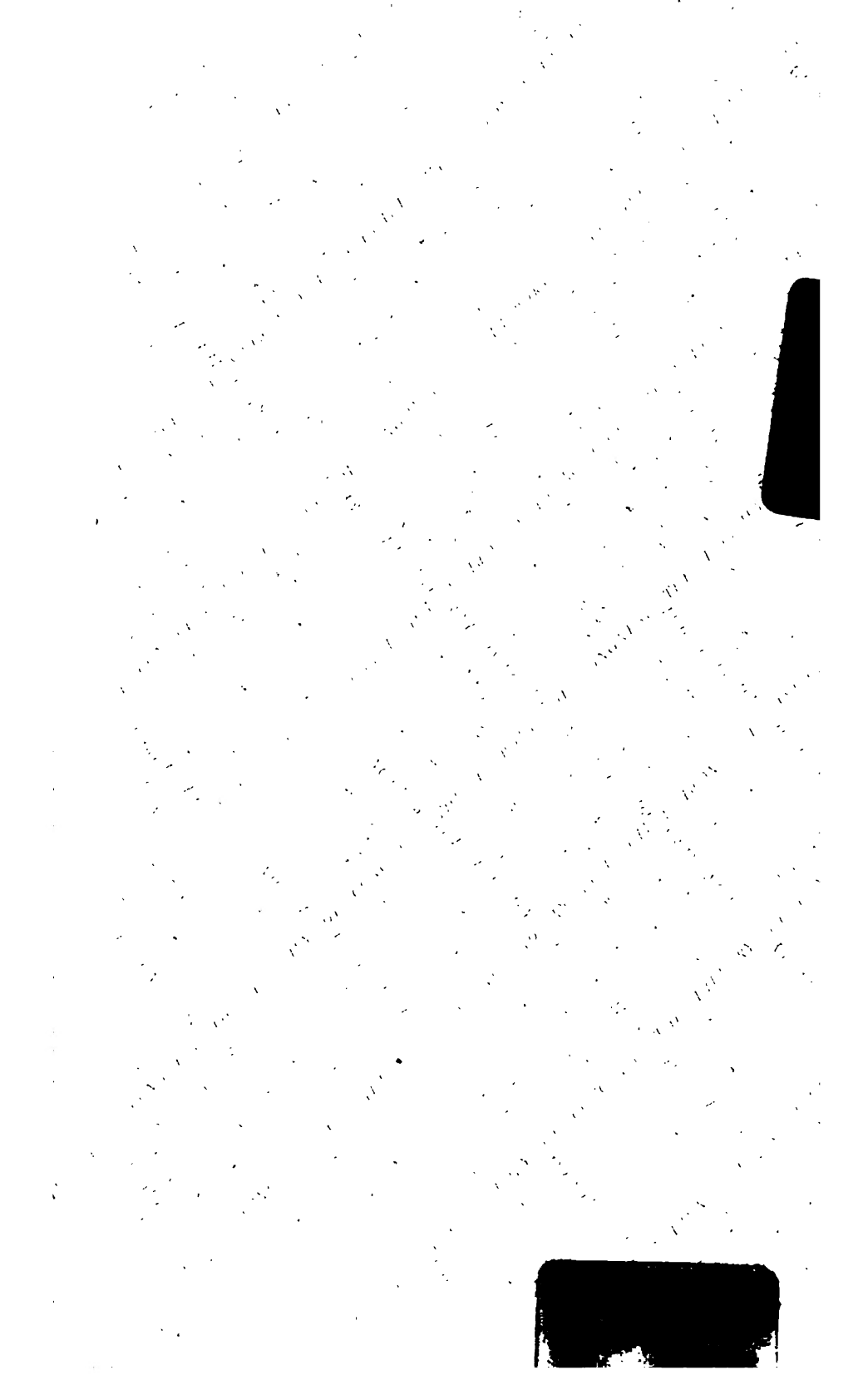




Decidified using the Bookkeeper process
Neutralizing agent: Magnesium Oxide
Treatment Date: Feb. 2004

PreservationTechnologies
A WORLD LEADER IN PAPER PRESERVATION

111 Thomson Park Drive
Cranberry Township, PA 16066
(724) 779-2111



LIBRARY OF CONGRESS



0 015 894 587 3